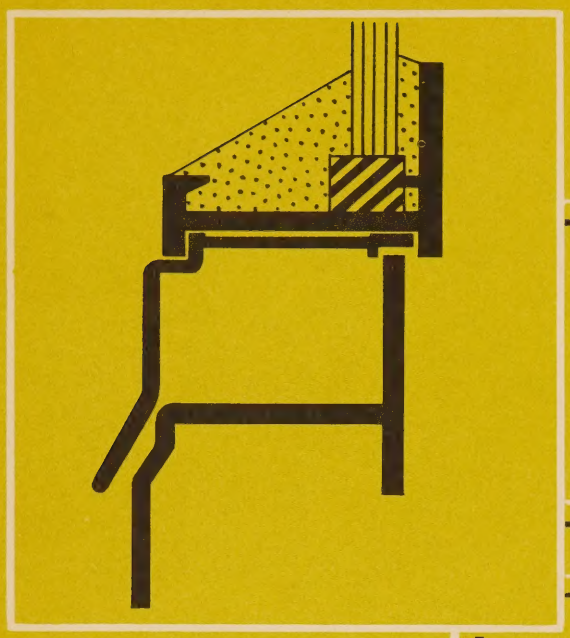
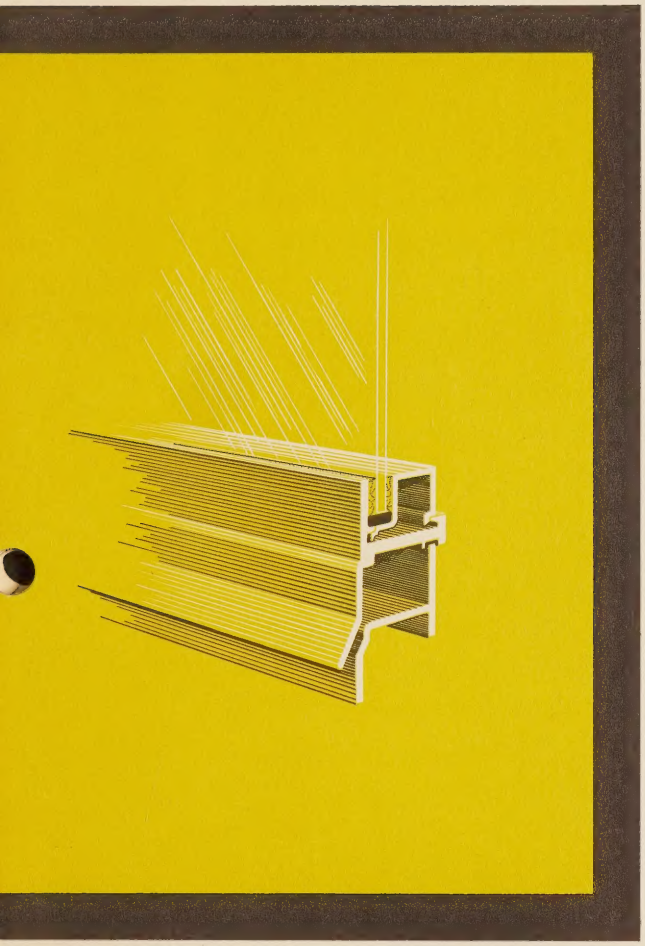


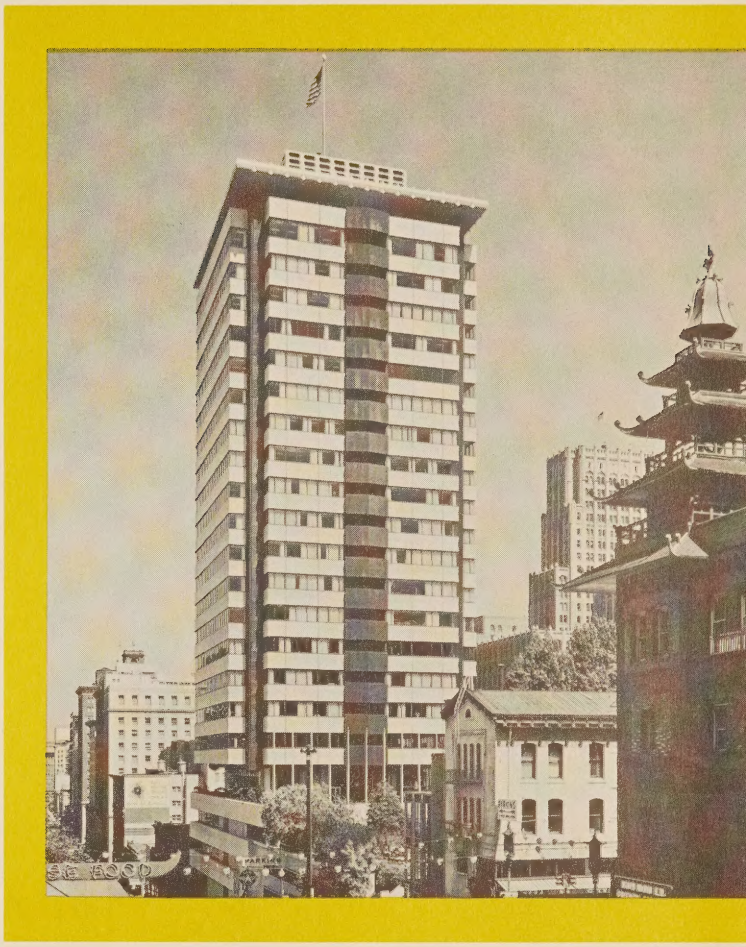
Kawneer

Aluminum
SEALAIR WINDOWS

CONSTRUCTION DETAILS • FULL and QUARTER

ALUMINUM COMMERCIAL AND MONUMENTAL WINDOWS





Kawneer / SEALAIR WINDOWS

A.I.A. and R.A.I.C. File No. 16-E

INDEPENDENT TEST PROVES NEW KAWNEER SEALAIR WINDOW PERFORMANCE FAR SUPERIOR TO OTHERS

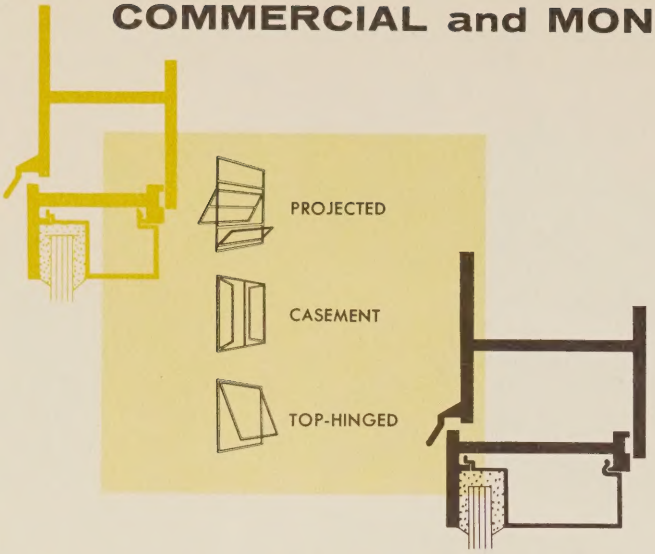
Not even a Test Laboratory Hurricane (70-80 per hour winds and rains) can make it leak!

In tests certified by an independent laboratory, the new Kawneer Sealair Window's performance (water and air infiltration) was far superior to that of other well-known windows of conventional design.

Windows were installed in a vacuum-type test chamber. The test procedure and facilities were as described in the N A A M M Metal Curtain Wall Manual...but the performance results far exceed this minimum industry standard. As water splattered against the outside of the window, pressure inside the chamber was lowered to produce typical weather conditions.

The New Kawneer Sealair did not leak at a static load of 25 p.s.f. Yet most conventional windows will leak at 3 to 5 p.s.f.

The Sealair is also superior when tested for air infiltration...holding below .2 c.f.m. per linear foot of perimeter.

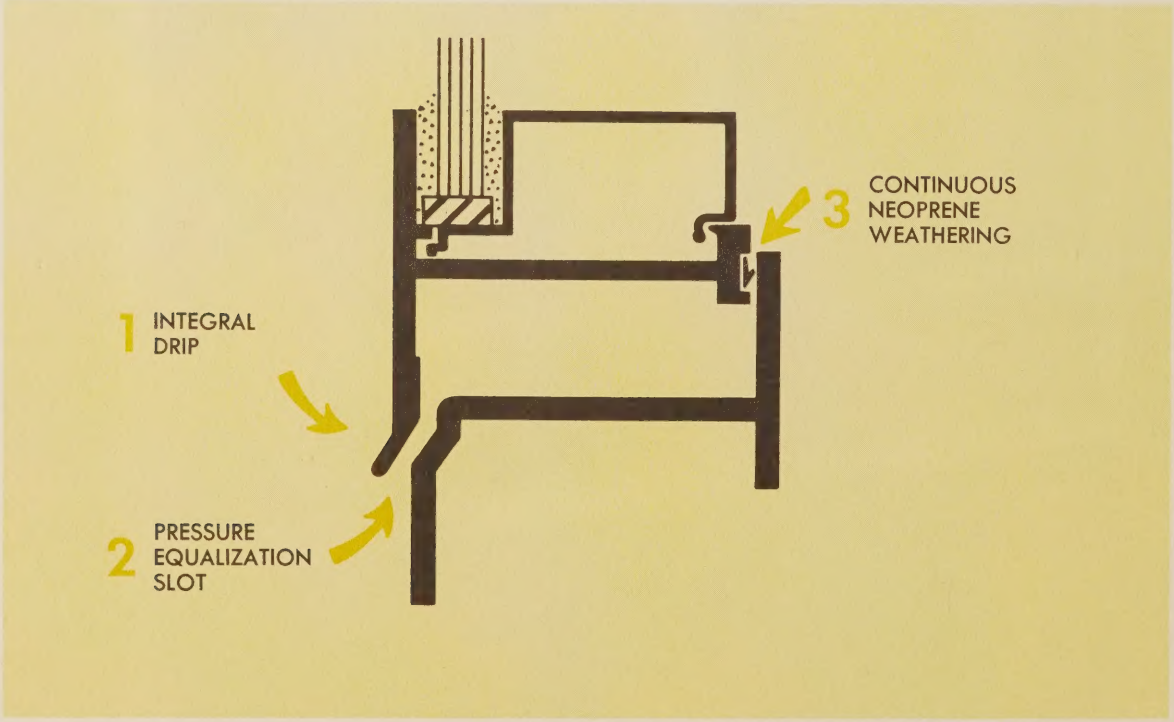


Here's how New Kawneer Sealair Windows Solve the Weathering Problem

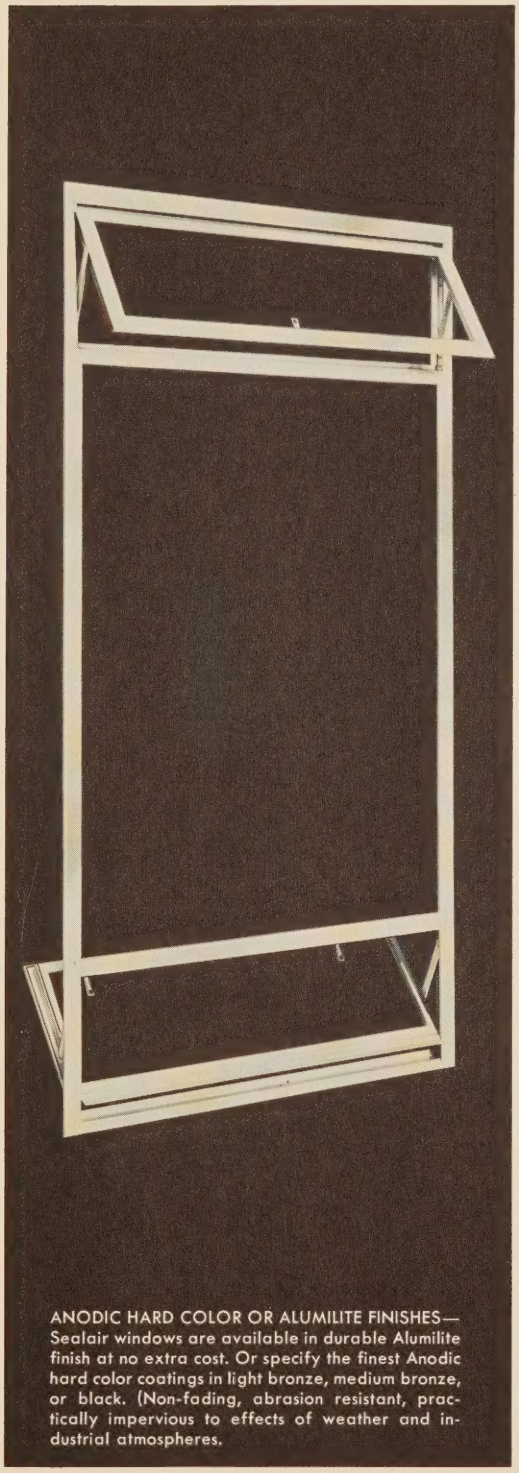
Kawneer prevents leaking with exclusive triple weather guard . . . . 1 Integral Drip, 2 Pressure Equalization Slot and 3 Neoprene Weatherstrip.

When storm winds blow, air pressure inside a building is lower than outside pressure. Hence, conventional windows build up a partial vacuum, within the window sections. Water is drawn through weatherseals and collects inside window sections faster than weepholes can drain it. The water flows over the window legs and damages building interiors.

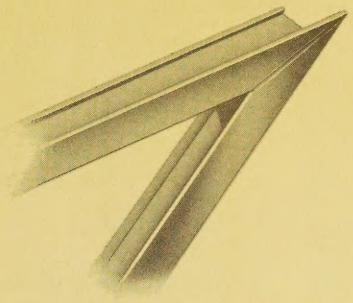
Kawneer's pressure equalization slot and integral drip keeps water out. Pressure within the window section is equal to pressure outside the building. No pressure difference—no partial vacuum — no leakage. Even dust and winter winds will not infiltrate, and air conditioned air will not exfiltrate through the unique neoprene seal design.



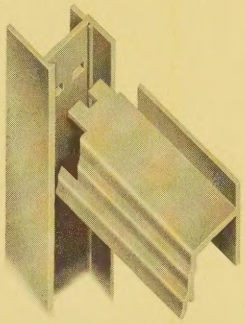
Weathering features plus.....



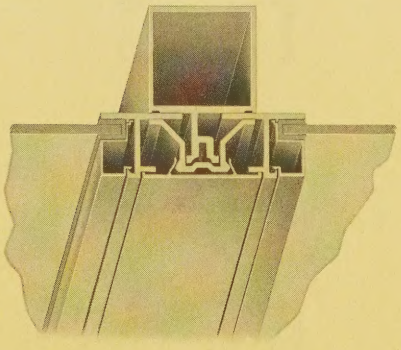
ANODIC HARD COLOR OR ALUMILITE FINISHES—
Sealair windows are available in durable Alumilite finish at no extra cost. Or specify the finest Anodic hard color coatings in light bronze, medium bronze, or black. (Non-fading, abrasion resistant, practically impervious to effects of weather and industrial atmospheres.



FUSION WELDED OPERATING VENTS FOR MAXIMUM STRENGTH—
Operating vents require maximum strength. Kawneer's mitered vent joints are electronically fusion welded under a nine ton force. The result is extremely rigid corner construction to resist twisting or racking.



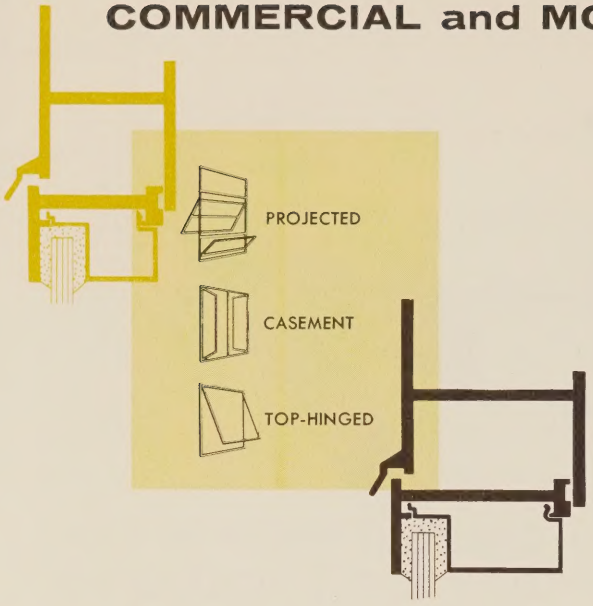
DOUBLE MORTISED AND TENONED FRAME JOINTS
The Sealair window has superior structural strength. The double mortise and tenon frame prevents twisting . . . provides strength to withstand normal handling and installation racking. All joints are made leakproof with a factory applied sealant.



FLUSH MULLIONS
SIMPLIFY INTERIOR CONSTRUCTION
Interior window surfaces are neat and uncluttered to permit simple, inexpensive installation of convector covers, stools, drapery track and trim.

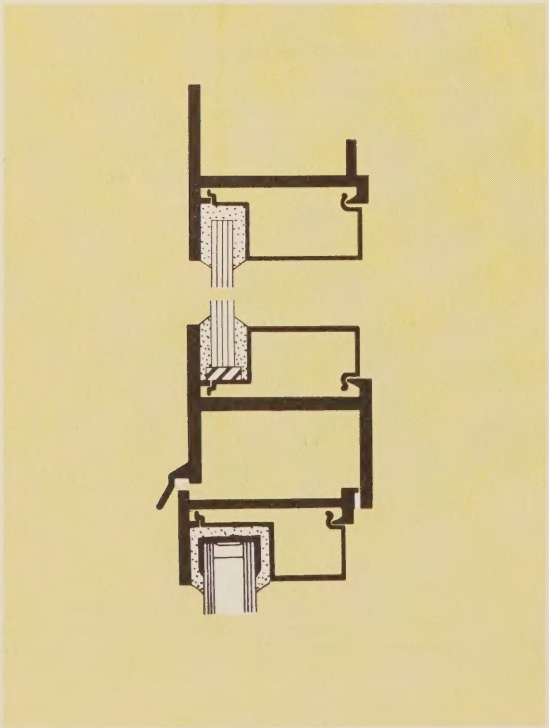
PATENT APPLIED FOR

COMMERCIAL and MONUMENTAL

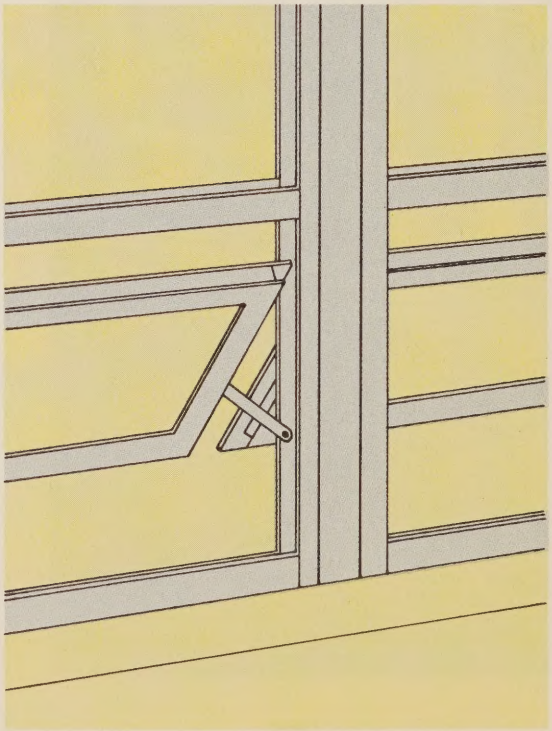


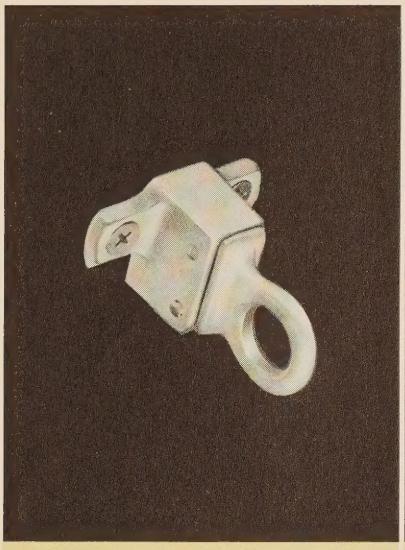
Here are More reasons why Sealair Windows are superior in every way

DEEP GLAZING POCKET—
Positive grip on glass-single and insulating—is assured by extra high glazing legs.

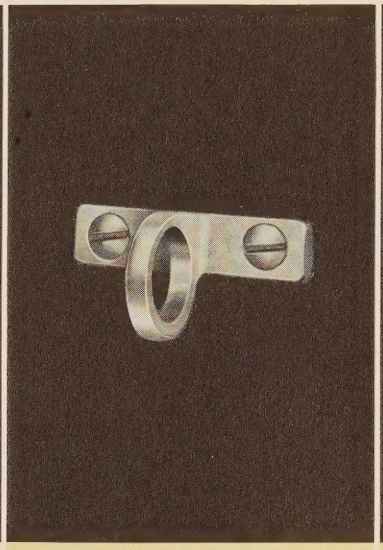


EASY, BALANCED VENT OPERATION—
Pivot arm locations have been determined by computer to assure optimum balance and easy operation.

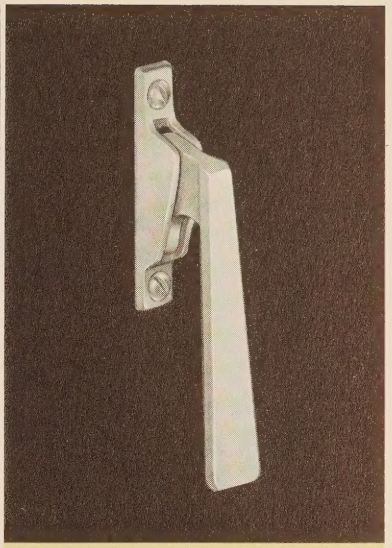




Spring catches used as alternates for cam handles for pole operation of projected-in vents.

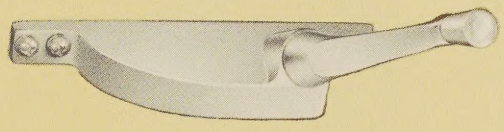


Pole rings used in conjunction with cam handles for pole operation of projected-out vents.

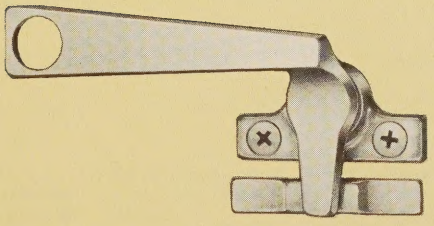


Locking handles for casement windows.

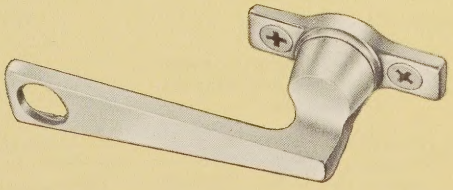
.....design matched hardware



Crank operator for casement windows.



Locking Handle Assembly for projected-out vents.

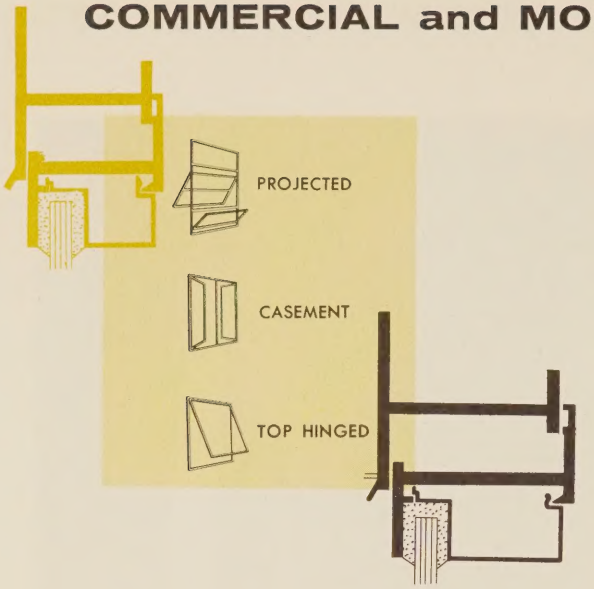


Locking Handle Assembly for Projected-In vents.

All Sealair Windows Feature: Hardware of white bronze for uniform appearance as well as durability.

COMMERCIAL and MONUMENTAL

SPECIFICATIONS



COMMERCIAL Mullions, Head, Jambs, Sills and Anchoring Details.....Pages 22 & 23

MONUMENTAL Mullions, Head, Jambs, Sills and Anchoring Details.....Pages 34 & 35

INCORPORATING EXCLUSIVE FEATURES ILLUSTRATED ON PRECEDING PAGES

PERFORMANCE: Manufacturer shall provide an affidavit or certified test report by a N A A M M listed testing agency, stating that the windows furnished under this section meet or exceed the following:

Resistance to air infiltration: Static air infiltration shall not exceed .25 CFM per lineal foot of crack perimeter when tested as prescribed in N A A M M Test B (Metal Curtain Walls).

Resistance to water infiltration: There shall be no leakage when the window is tested by static pressure using methods prescribed in N A A M M Test C1 (Metal Curtain Walls) at _____ PSF (Projected—25 PSF; Casement—15 PSF; Top-Hinged—15 PSF).*

Performance under uniform loading: Maximum deflection of any member shall not exceed 1/175 of its span and when the load is removed, there shall be no evidence of any permanent deformation or damage to any member when tested under a load of _____ PSF (Projected—35 PSF; Casement—25 PSF; Top-Hinged—25 PSF) for a period not less than 5 minutes.

**Although tests followed procedures recommended in The N A A M M Curtain Wall Manual, test loads were considerably higher and performances were certified to exceed NAAMM Standards.*

SCOPE OF WORK: Includes furnishing and installation (perimeter caulking and glazing) of all metal windows complete with all necessary anchors and accessories.

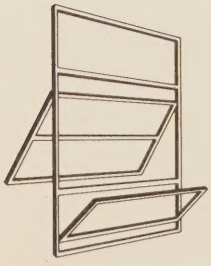
Work not included:

1. Structural supports at mullions.
2. Interior furnishings or closures between window mullions and partitions.
3. Metal sub-sills and masonry.
4. Final cleaning of windows and glass.

MATERIALS: All ventilators, frames, mullions, perimeters, balance arms and extruded glazing beads shall be 6063-T5 aluminum alloy. The combined overall depth of the window sections at ventilators shall not be less than (1 5/8") or (2 1/8"). All fasteners shall be of non-magnetic stainless steel, aluminum or other compatible mate-

COMMERCIAL

PROJECTED



Specifications, Hardware and Glazing Options..... Page 10

Dimensioning Reference and Design Recommendations.. Page 11

Standard Sizes and Types..... Pages 12 and 13

½ Size Detail Sections..... Pages 14 and 15

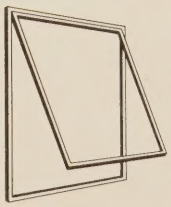
CASEMENT

Specifications, Hardware and Glazing Options..... Page 16

Dimensioning Reference and Design Recommendations.. Page 17

½ Size Detail Sections..... Pages 18 and 19

TOP-HINGED



Specifications and Glazing Options.... Page 20

Dimensioning Reference and Design Recommendations.. Page 21

½ Size Detail Sections..... Page 21

rials. Locking handles, strikes and keepers, pole rings and spring latches shall be of white bronze with a minimum 20% nickel content and shall be non-corrosive and non-staining to window members. Continuous weatherstrip shall be applied to the full perimeter of the ventilator and shall be of black neoprene. Friction shoes shall be self-lubricating nylon. All mechanically fastened joints shall be factory sealed with a resilient, non-hardening compound.

CONSTRUCTION:** All four corners of ventilators shall be mitered, electronic fusion welded and trimmed. Welds shall not be discolored after finishing. Frame corners and joints of meeting rails and muntins shall be double tenon jointed, mechanically forged and made permanently leak-proof at the factory. Ventilator rails or muntins shall be _____ sections (See Charts for selection of solid or tubular rails). The minimum depth of glazing rebate shall be ¾". Glazing beads shall be of the snap-in type and shall have no exposed fasteners. All rails above operating vent joints shall have integral drips and all bottom horizontal rails on operating vents shall have a pressure equalization slot to eliminate leakage and control draining. All other rails shall have a continuous weathering overlap of metal, not less than 5/16" in width.

FINISHES: Windows shall be free of scratches and other serious surface blemishes and chemically cleaned to remove fabricating oil. All aluminum sections shall be given a caustic etch and anodic oxide treatment to conform to N A A M M Specification NA-CE1A.

OR (Anodic Color—Light Bronze)
All aluminum sections shall be 6063-T5 alloy and shall be given a caustic etch and a high density anodic treatment to produce an .0008" thick oxide coating with integral light bronze color.

OR (Anodic Color—Medium Bronze)
All aluminum sections shall be 6063-T5 alloy and shall be given a caustic etch and a high density anodic treatment to produce an .0014" thick oxide coating with integral medium bronze color.

OR (Anodic Color—Black)
All aluminum sections shall be KB-51 alloy and shall be given a caustic etch and a high density anodic treatment to produce an .0010" thick oxide coating with integral black color.

PROTECTIVE COATINGS: (Optional) Prior to shipment all aluminum surfaces shall receive a clear, non-yellowing lacquer coating and aluminum clips, anchors and other loose parts to be placed in contact with concrete, mortar, plaster or dissimilar metals shall be given a heavy coat of zinc chromate paint. Field welds and scratches shall receive one touchup coat after installation. Dissimilar metals, except stainless steel or white bronze, which are to be in contact with aluminum shall be painted with a heavy coat of zinc chromate primer.

FINISH HARDWARE:** Locking handles and keepers, pull rings and spring latches shall be non-corrosive and non-staining to window members. All handles shall be fastened by screws directly into white bronze or through stainless steel reinforcing inserts and be removable for replacement or adjustment without damaging ventilators or frame. Use _____ handles on _____ (type) vents over _____ widths. (See Page 4, Section G in Kawneer Sealair Window Construction Details for application of handles.)

VENTILATOR HARDWARE: Ventilators shall be supported on fully adjustable aluminum balance arms allowing 55° opening and shall be equipped with a positive stop. Arms shall be not less than 3/16" x 1" and shall be pivoted on nylon bushings.

The sliding mechanisms shall be securely attached to the window frame and shall consist of sliding nylon shoes with a friction adjustment and shall hold the ventilator firmly in any open position.

SCREENS: Insect screens shall be constructed with extruded frames, rigidly joined at their corners. Screen cloth shall be 18 x 16 mesh aluminum and shall be cleaned thoroughly to provide a uniform color. Screen frames shall be finished to match aluminum windows. Splines shall be extruded vinyl, removable to permit rescreening.

ACCESSORIES: Pole operators shall have handles of tubular aluminum with a rubber tip at the lower end and shall be of proper length to permit easy operation of the window from the floor. One pole and metal hanger shall be provided for each _____ windows. (Specify quantity)

INSTALLATION: Windows shall be installed, glazed, and adjusted by experienced workmen in accordance with the manufacturer's instructions and approved shop drawings.

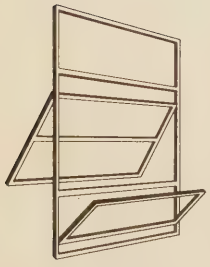
PROTECTION AND CLEANING: After installation, metal surfaces of windows shall be cleaned on both interior and exterior of all mortar, plaster, paint and other contaminants. After being cleaned, all work shall be protected against damage until it is accepted by the general contractor. Thereafter, it shall be the responsibility of the general contractor to maintain protection and provide final cleaning.

GUARANTEE: This contractor shall guarantee his work against defective materials or workmanship for a period of two years following acceptance of the materials by the architect.

**For Casement and Top-Hinged variations, see Short Form Specifications.

MONUMENTAL

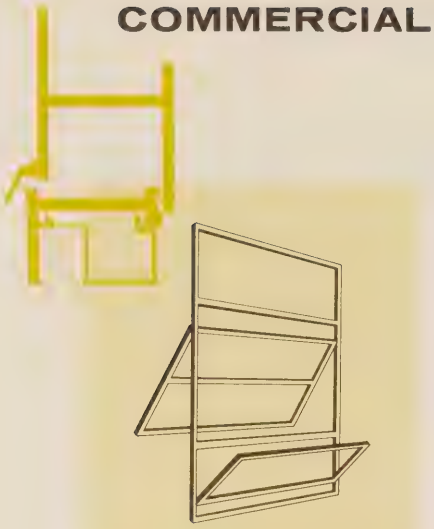
PROJECTED



CASEMENT

TOP-HINGED

COMMERCIAL PROJECTED



SHORT FORM SPECIFICATION PROJECTED WINDOW

MATERIALS: All ventilators, frames, mullions, perimeters, balance arms and extruded glazing beads shall be 6063-T5 aluminum alloy. The combined overall depth of the window sections at ventilators shall not be less than 1 5/8". All fasteners shall be of non-magnetic stainless steel, aluminum or other compatible materials. Locking handles, strikes and keepers, pole rings and spring latches shall be of white bronze with a minimum 20% nickel content and shall be non-corrosive and non-staining to window members. Continuous weatherstip shall be applied to the full perimeter of the ventilator and shall be of black neoprene. Friction shoes shall be self-lubricating nylon. All mechanically fastened joints shall be factory sealed with a resilient, non-hardening compound.

CONSTRUCTION: All four corners of ventilators shall be mitered, electronic fusion welded and trimmed. Welds shall not be discolored after finishing. Frame corners and joints of meeting rails and muntins shall be double tenon jointed, mechanically forged and made permanently leak-proof at the factory. Ventilator rails or meeting rails or muntins shall be ____ sections (see Chart on next page for selection of solid or tubular rails). The minimum depth of glazing rebate shall be 3/4". Glazing beads shall be of the snap-in type and shall have no exposed fasteners. All rails above operating vent joints shall have integral drips and all bottom horizontal rails on operating vents shall have a pressure equalization slot to eliminate leakage and control draining. All other rails shall have a continuous weathering overlap of metal, not less than 5/16" in width.

FINISHES: Windows shall be free of scratches and other serious surface blemishes and chemically cleaned to remove fabricating oil. All aluminum sections shall be given a caustic etch and anodic oxide treatment to conform to N A A M M specification NA-CE1A. (For additional specifications and protective coatings, see General Specifications, Pages 8 and 9.)

FINISH HARDWARE: Locking handles and keepers, pull rings and spring latches shall be non-corrosive and non-staining to window members. All handles shall be fastened by screws directly into white bronze or through stainless steel reinforcing inserts and be removable for replacement or adjustment without damaging ventilators or frame. Use _____ handles on (type) vents over _____ widths. (See Page 4, Section G in Kawneer Sealair Window Construction Details.)

VENTILATOR HARDWARE: Ventilators shall be supported on fully adjustable aluminum balance arms allowing 55° opening and shall be equipped with a positive stop. Arms shall be not less than 3/16" x 1" and shall be pivoted on nylon bushings.

The sliding mechanisms shall be securely attached to the window frame and shall consist of sliding nylon shoes, with a friction adjustment and shall hold the ventilator firmly in any open position.

SCREENS: Insect screens shall be constructed with extruded frames, rigidly joined at their corners. Screen cloth shall be 18 x 16 mesh aluminum and shall be cleaned thoroughly to provide a uniform color. Screen frames shall be finished to match aluminum windows. Splines shall be extruded vinyl, removable to permit rescreening.

ACCESSORIES: Pole operators shall have handles of tubular aluminum with a rubber tip at the lower end and shall be of proper length to permit easy operation of the window from the floor.

PERFORMANCE: Manufacturer shall furnish an affidavit or certified test report by a testing agency using testing procedures listed by N A A M M, stating that the window meets or exceeds the following:

Resistance to air infiltration: Static air infiltration shall not exceed .25 CFM per lineal foot of crack perimeter when tested as prescribed in N A A M M Test B (Metal Curtain Walls).

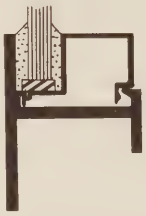
Resistance to water infiltration: There shall be no leakage when the window is tested by static pressure using methods prescribed in N A A M M Test C1 (Metal Curtain Walls) at 25 PSF.*

Performance under uniform loading: Maximum deflection of any member shall not exceed 1/175 of its span and when the load is removed, there shall be no evidence of any permanent deformation or damage to any member when tested under a load of 35 PSF (architect to specify if higher loads required) for a period not less than 5 minutes. Windows shall be glazed, closed, and locked and shall be continuously supported on all sides.

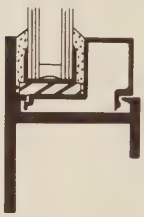
*Although tests followed procedures recommend in The N A A M M Curtain Wall Manual, test loads were considerably higher and performances were certified to exceed N A A M M standards.

GLASS THICKNESS OPTIONS

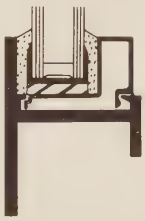
FOR: 1/8" & 3/16" GLASS
BEAD: 360-081
ST. BLK.: 257-880



FOR: 1/4" & 7/32" GLASS
BEAD: 360-080
ST. BLK.: 257-880



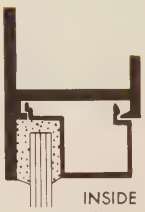
FOR: 1/2" GLASS
BEAD: 360-082
ST. BLK.: 257-882



FOR: 5/8" GLASS
BEAD: 360-083
ST. BLK.: 257-882

FOR: 1/8"-3/16"-1/4"-7/32"
PUTTY GLAZING
ST. BLK.: 360-213

GLAZING OPTIONS

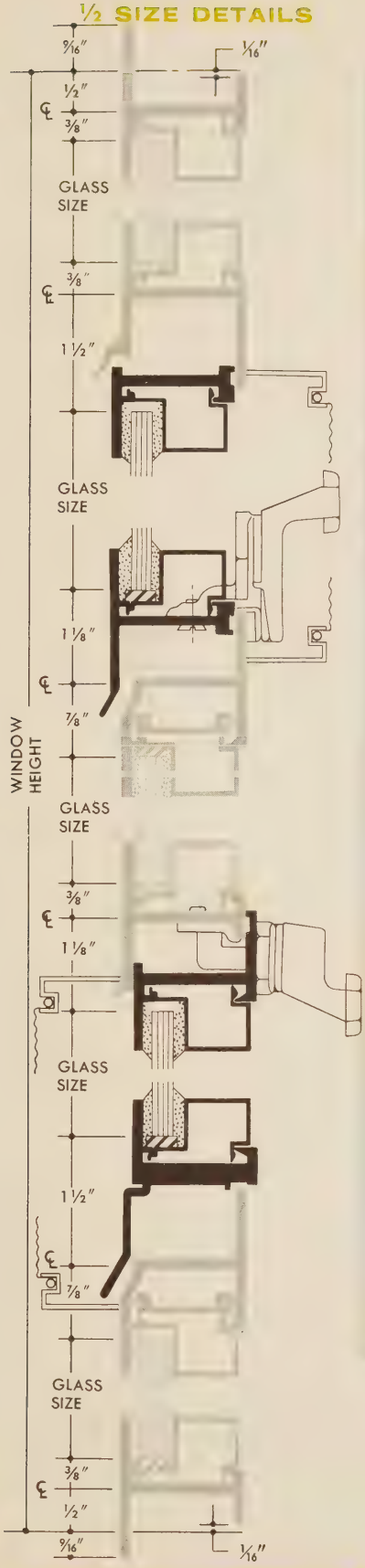


INSIDE
BEAD

OUTSIDE
PUTTY

OUTSIDE
BEAD

½ SIZE DETAILS



DIMENSION REFERENCE POINTS

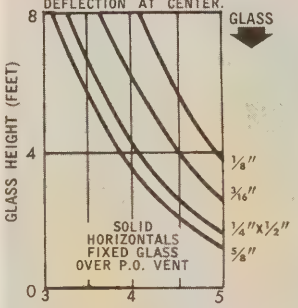
DESIGN OPTIONS and RECOMMENDATIONS

SOLID

TUBULAR

GLASS SIZE LIMITATIONS

BASED ON ¼" POINT LOADING WITH MAXIMUM 1/16" DEFLECTION AT CENTER.



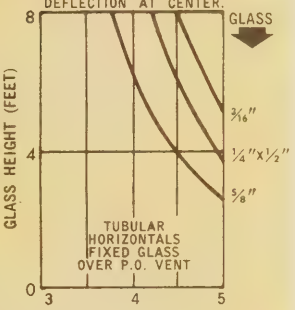
WEIGHT LIMITATIONS

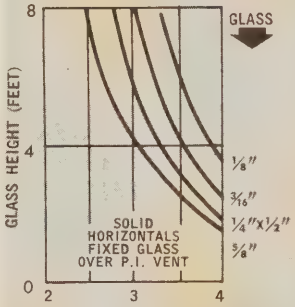
BASED ON ⅛" POINT LOADING FOR METAL PANEL WITH MAX. 1/16" DEFLECTION.

WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	857.	1918.
30	438.	482.
36	253.	568.
42	159.	357.
48	107.	239.
54	75.	168.
60	54.	122.

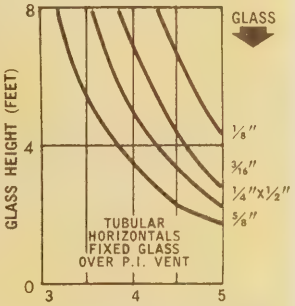
GLASS SIZE LIMITATIONS

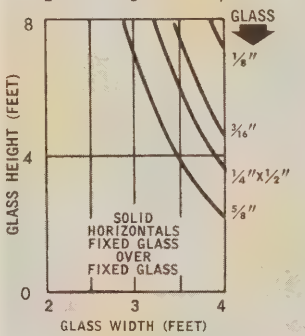
BASED ON ¼" POINT LOADING WITH MAXIMUM 1/16" DEFLECTION AT CENTER.



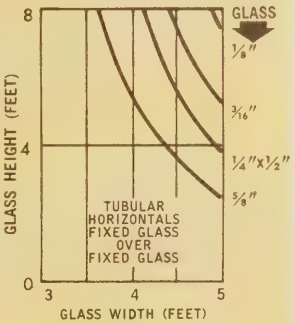


WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	378.	1011.
30	193.	517.
36	112.	299.
42	70.	188.
48	47.	126.
54		88.
60		64.





WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	673.	1796.
30	344.	919.
36	199.	532.
42	125.	335.
48	84.	224.
54		157.
60		114.



VENT SIZE LIMITATIONS

	SOLID		TUBULAR	
	WIDTH WINDOW DIM.	HEIGHT FRAME ℄ DIM.	WIDTH WINDOW DIM.	HEIGHT FRAME ℄ DIM.
MAX:	4'-0"	3'-0"	5'-0⅞"	3'-0"
MIN:	2'-0"	15⅜"	3'-0"	15⅜"

STANDARD SIZE PROJECTED WINDOWS

GLASS HEIGHTS	STANDARD TYPES AND HEIGHTS VIEWED FROM INSIDE	STANDARD WIDTHS 2'0⅞"	2'8⅞"	3'4⅞"	3'8⅞"	4'0⅞"	4'8⅞"
13⅜"	1' 5"	300-000	300-100	300-300	300-400	300-500	300-700
13⅜"	1' 5"	300-001	300-101	300-301	300-401	300-501	300-701
14½" 14⅛"	2' 9"	300-015	300-115	300-315	300-415	300-515	300-715
14⅛" 14½"	2' 9"	300-014	300-114	300-334	300-434	300-534	300-734
14⅛" 14½" 13⅜"	4' 1"	300-027	300-127	300-327	300-427	300-527	300-727
31¼" 13⅜"	4' 1"	301-020	301-120	301-330	301-430	301-530	301-730
14⅛" 14½" 14¾"	4' 1"	301-027	301-127	301-327	301-427	301-527	301-727
13⅜" 30¾" 13⅜"	5' 5"	301-032	301-132	301-332	301-432	301-532	301-732
GLASS WIDTHS	FOR OPERATING VENTS FOR FIXED LITES	21¾" 23¼"	29¾" 31¼"	37¾" 39¼"	41¾" 43¼"	45¾" 47¼"	53" 55¼"

GLASS HEIGHTS	STANDARD TYPES AND HEIGHTS VIEWED FROM INSIDE	STANDARD WIDTHS 2'0⅞"	2'8⅞"	3'4⅞"	3'8⅞"	4'0⅞"	4'8⅞"
47¼" 13⅜"	5' 5"	301-030	301-130	301-330	301-430	301-530	301-730
15¼" 14⅛" 14½" 14¾"	5' 5"	301-037	301-137	301-337	301-437	301-537	301-737
15¼" 14⅛" 14½" 13⅜"	5' 5"	301-036	301-136	301-336	301-436	301-536	301-736
63¼" 13⅜"	6' 9"	301-040	301-140	301-340	301-440	301-540	301-740
13⅜" 46¾" 13⅜"	6' 9"	301-042	301-142	301-342	301-442	301-542	301-742
15¼" 14⅛" 14½" 14¾" 13⅜"	6' 9"	301-046	301-146	301-346	301-446	301-546	301-746
15¼" 15¼" 14⅛" 14½" 14¾" 13⅜"	8' 1"	301-056	301-156	301-356	301-456	301-556	301-756
79¼" 13⅜"	8' 1"	301-050	301-150	301-350	301-450	301-550	301-750
GLASS WIDTHS	FOR OPERATING VENTS FOR FIXED LITES	21¾" 23¼"	29¾" 31¼"	37¾" 39¼"	41¾" 43¼"	45¾" 47¼"	53" 55¼"

INTERMEDIATE FRAME HORIZONTALS ARE LOCATED 16" O. C. ONLY. ANY DEVIATIONS FROM THESE SPACINGS, OR FROM THE SIZE AND ARRANGEMENTS SHOWN, ARE NOT STANDARD.

STANDARD SIZE FIXED WINDOWS—OUTSIDE PUTTY GLAZING ONLY

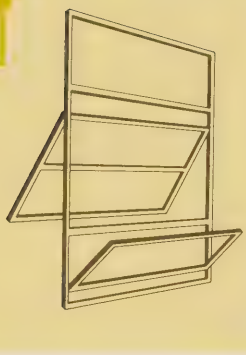
GLASS HEIGHTS	STANDARD TYPES AND HEIGHTS VIEWED FROM INSIDE	STANDARD WIDTHS 2′0⅞″	2′8⅞″	3′4⅞″	3′8⅞″	4′0⅞″	4′8⅞″
15¼″	1′ 5″	302-000	302-100	302-300	302-400	302-500	302-700
31¼″	2′ 9″	302-010	302-110	302-310	302-410	302-510	302-710
15¼″ 15¼″	2′ 9″	302-011	302-111	302-311	302-411	302-511	302-711
47¼″	4′ 1″	302-020	302-120	302-320	302-420	302-520	302-720
15¼″ 15¼″ 15¼″	4′ 1″	302-021	302-121	302-321	302-421	302-521	302-721
31¼″ 15¼″	4′ 1″	302-023	302-123	302-323	302-423	302-523	302-723
63¼″	5′ 5″	302-030	302-130	302-330	302-430	302-530	302-730
15¼″ 15¼″ 15¼″ 15¼″	5′ 5″	302-031	302-131	302-331	302-431	302-531	302-731
47¼″ 15¼″	5′ 5″	302-033	302-133	302-333	302-433	302-533	302-733
GLASS WIDTHS	FOR FIXED LITES	23¼″	31¼″	39¼″	43¼″	47¼″	55¼″

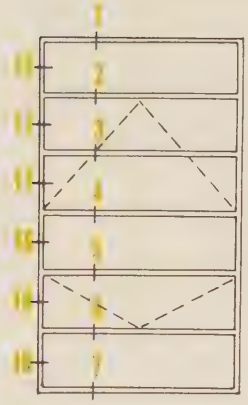
GLASS HEIGHTS	STANDARD TYPES AND HEIGHTS VIEWED FROM INSIDE	STANDARD WIDTHS 2′0⅞″	2′8⅞″	3′4⅞″	3′8⅞″	4′0⅞″	4′8⅞″
15¼″ 31¼″ 15¼″	5′ 5″	302-034	302-134	302-334	302-434	302-534	302-734
79¼″	6′ 9″	302-040	302-140	302-340	302-440	302-540	302-740
15¼″ 15¼″ 15¼″ 15¼″ 15¼″	6′ 9″	302-041	302-141	302-341	302-441	302-541	302-741
63¼″ 15¼″	6′ 9″	302-043	302-143	302-343	302-443	302-543	302-743
15¼″ 47¼″ 15¼″	6′ 9″	302-044	302-144	302-344	302-444	302-544	302-744
95¼″	8′ 1″	302-050	302-150	302-350	302-450	302-550	302-750
15¼″ 15¼″ 15¼″ 15¼″ 15¼″ 15¼″	8′ 1″	302-051	302-151	302-351	302-451	302-551	302-751
79¼″ 15¼″	8′ 1″	302-053	302-153	302-353	302-453	302-553	302-753
GLASS WIDTHS	FOR FIXED LITES	23¼″	31¼″	39¼″	43¼″	47¼″	55¼″

STANDARD SIZES AVAILABLE FOR FAST DELIVERY:

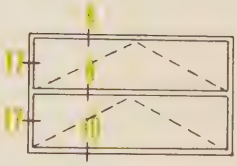
- Outside putty glazed
- Glass up to 5/8″ in thickness
- 1/2 Hour anodized finish
- Unequal leg frame
- 16″ spacing between horizontal rails as shown above

COMMERCIAL PROJECTED





FIXED MEMBERS
OPERATING MEMBERS
P. I.—PROJECTED-IN
P. O.—PROJECTED-OUT

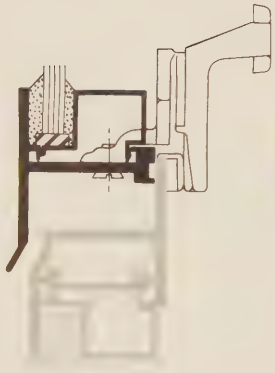


ELEVATIONS ARE NUMBER KEYED TO THE CORRESPONDING DETAIL SECTIONS BELOW

VERTICAL SECTIONS

1 FIXED HEAD GLASS

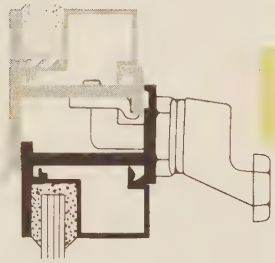
4 P. O. VENT ABOVE FIXED GLASS



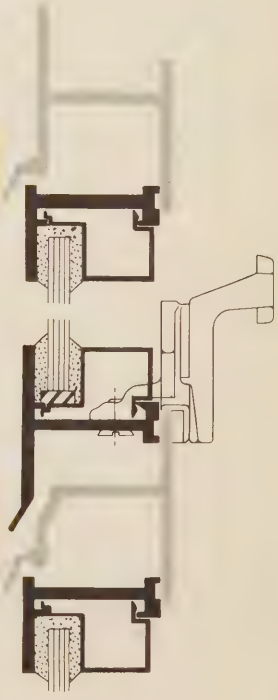
7 SILL FIXED GLASS

2 FIXED GLASS ABOVE P. O. VENT

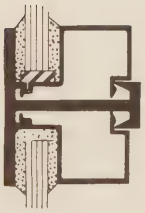
5 FIXED GLASS OVER P. I. VENT



8 HEAD P. O. VENT



3 HORIZONTAL MUNTIN

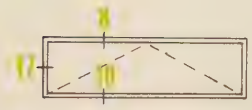


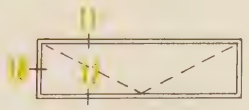
6 P. I. VENT OVER FIXED GLASS

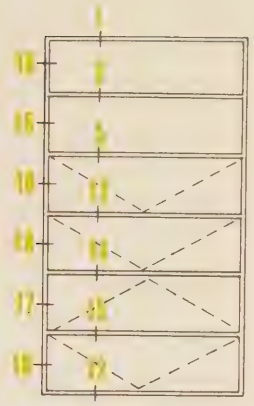
9 P. O. VENT OVER P. O. VENT

FIXED MEMBERS
OPERATING MEMBERS
P. I.—PROJECTED-IN
P. O.—PROJECTED-OUT

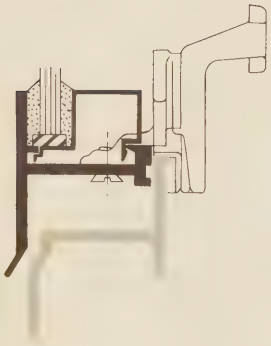
ELEVATIONS ARE NUMBER KEYED TO THE CORRESPONDING DETAIL SECTIONS BELOW



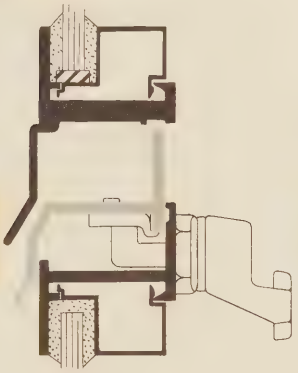




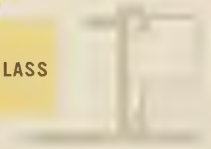
10
SILL P. O. VENT



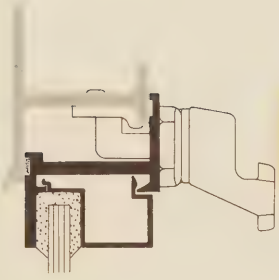
13
P. I. VENT ABOVE P. O. VENT



16
FIXED GLASS



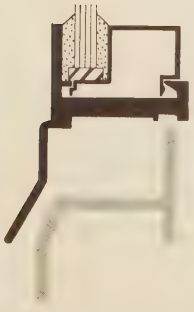
11
HEAD P. I. VENT



14
P. I. VENT OVER P. O. VENT

17
P. O. VENT

12
SILL P. I. VENT



15
P. O. VENT ABOVE P. I. VENT

18
P. I. VENT

COMMERCIAL CASEMENT

SHORT FORM SPECIFICATION CASEMENT WINDOW

MATERIALS: All ventilators, frames, mullions, perimeters, balance arms and extruded glazing beads shall be 6063-T5 aluminum alloy. The combined overall depth of the window sections at ventilators shall not be less than 1⅝". All fasteners shall be of non-magnetic stainless steel, aluminum or other compatible materials. Locking handles, keepers and gear operators shall be white bronze with a minimum 20% nickel content and shall be non-corrosive and non-staining to window members. Continuous weatherstrip shall be applied to the full perimeter of the ventilator and shall be of black neoprene. Friction shoes shall be self-lubricating nylon. All mechanically fastened joints shall be factory sealed with a resilient, non-hardening compound. Hinges shall be aluminum with stainless steel pins and thrust bearing and oilite bushings.

CONSTRUCTION: All four corners of ventilators shall be mitered, electronic fusion welded and trimmed. Welds shall not be discolored after finishing. Frame corners and joints of meeting rails and muntins shall be double tenon jointed, mechanically forged and made permanently leak-proof at the factory. Ventilator rails or meeting rails or muntins shall be ____ sections (see Chart on next page for selection of solid or tubular rails). The minimum depth of glazing rebate shall be ¾". Glazing beads shall be of the snap-in type and shall have no exposed fasteners. All rails above operating vent joints shall have integral drips and all bottom horizontal rails on operating vents shall have a pressure equalization slot to eliminate leakage and control draining. All other rails shall have a continuous weathering overlap of metal, not less than 5/16" in width.

FINISHES: Windows shall be free of scratches and other serious surface blemishes and chemically cleaned to remove fabricating oil. All aluminum sections shall be given a caustic etch and anodic oxide treatment to conform to N A A M M specification NA-CE1A. (For additional specifications and protective coatings, see General Specifications, Pages 8 and 9.)

FINISH HARDWARE: Locking handles, gear operators and hinges shall be non-corrosive and non-staining to windows. Operators shall be fastened by stainless steel screws through stainless steel reinforcing inserts and be removable for replacement or adjustment without damaging ventilators or frame.

SCREENS: Insect screens shall be constructed with extruded frames, rigidly joined at their corners. Screen cloth shall be 18 x 16 mesh aluminum and shall be cleaned thoroughly to provide a uniform color. Screen frames shall be finished to match aluminum windows. Splines shall be extruded vinyl, removable to permit rescreening.

PERFORMANCE: Manufacturer shall furnish an affidavit or certified test report by a N A A M M approved testing agency, stating that the window meets or exceeds the following:

Resistance to air infiltration: Static air infiltration shall not exceed .25 CFM per lineal foot of crack perimeter when tested as prescribed in N A A M M Test B (Metal Curtain Walls).

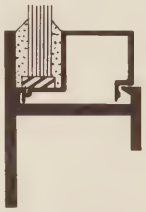
Resistance to water infiltration: There shall be no leakage when the window is tested by static pressure using methods prescribed in N A A M M Test C1 (Metal Curtain Walls) at 15 PSF.*

Performance under uniform loading: Maximum deflection of any member shall not exceed 1/175 of its span and when the load is removed, there shall be no evidence of any permanent deformation or damage to any member when tested under a load of 25 PSF (architect to specify if higher loads required) for a period not less than 5 minutes. Windows shall be glazed, closed, and locked and shall be continuously supported on all sides.

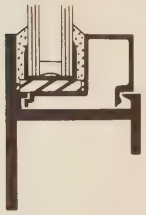
*Although tests followed procedures recommend in The N A A M M Curtain Wall Manual, test loads were considerably higher and performances were certified to exceed NAAMM standards.

GLASS THICKNESS OPTIONS

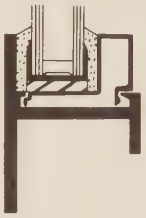
FOR: ⅛" & 3/16" GLASS
BEAD: 360-081
ST. BLK.: 257-880



FOR: ¼" & 7/32" GLASS
BEAD: 360-080
ST. BLK.: 257-880



FOR: ½" GLASS
BEAD: 360-082
ST. BLK.: 257-882

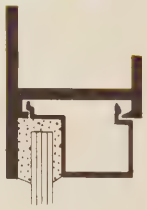


FOR: ⅝" GLASS
BEAD: 360-083
ST. BLK.: 257-882

FOR: ⅛"-3/16"-¼"-7/32"
PUTTY GLAZING
ST. BLK.: 360-213

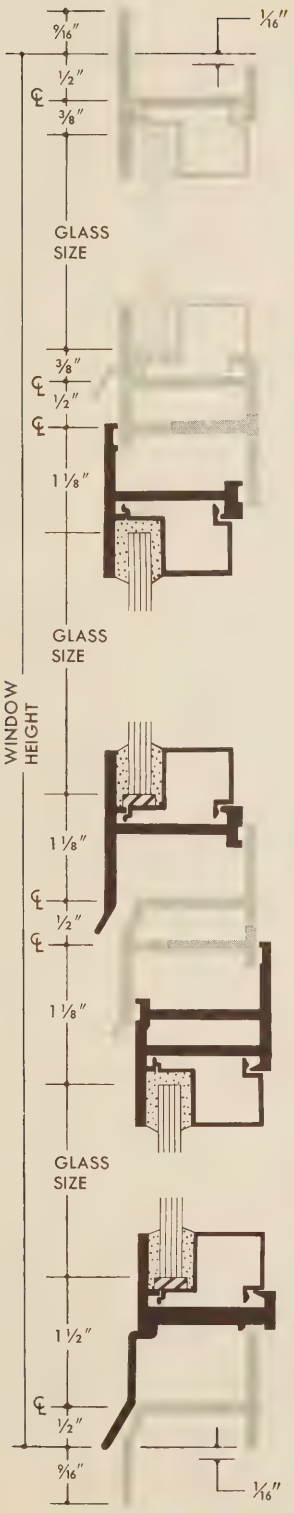
GLAZING OPTIONS

INSIDE BEAD



OUTSIDE PUTTY

OUTSIDE BEAD



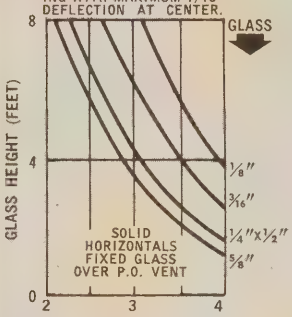
DESIGN OPTIONS and RECOMMENDATIONS

SOLID

TUBULAR

GLASS SIZE LIMITATIONS

BASED ON ¼" POINT LOADING WITH MAXIMUM 1/16" DEFLECTION AT CENTER.



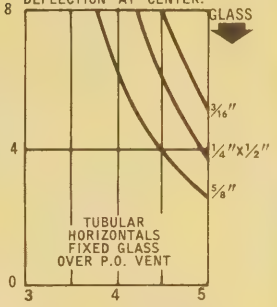
WEIGHT LIMITATIONS

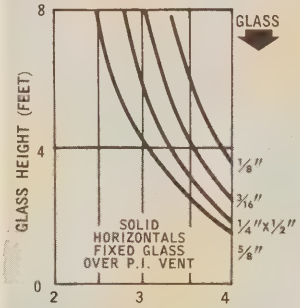
BASED ON ⅛" POINT LOADING FOR METAL PANEL WITH MAX. 1/16" DEFLECTION.

WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	857.	1918.
30	438.	482.
36	253.	568.
42	159.	357.
48	107.	239.
54	75.	168.
60	54.	122.

GLASS SIZE LIMITATIONS

BASED ON ¼" POINT LOADING WITH MAXIMUM 1/16" DEFLECTION AT CENTER.





WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	378.	1011.
30	193.	517.
36	112.	299.
42	70.	188.
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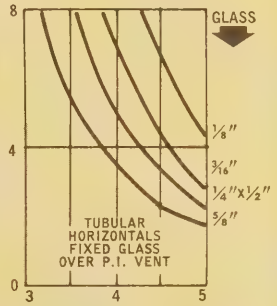

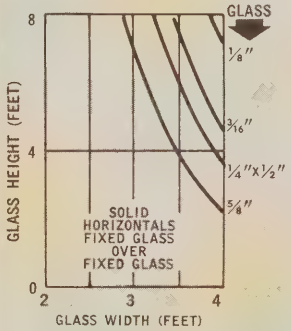

WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
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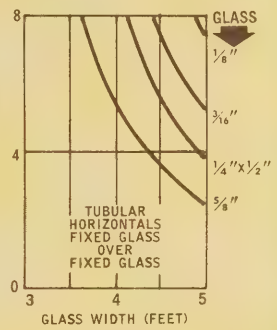
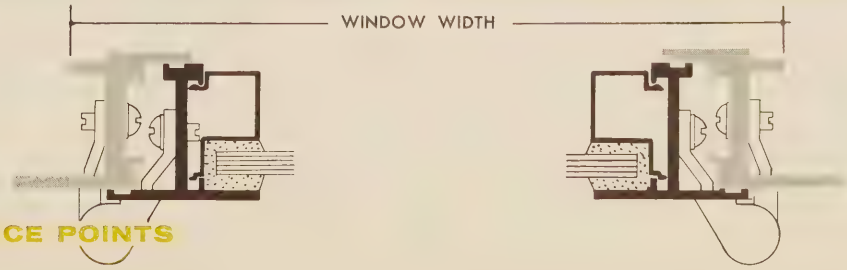
30	344.	919.
36	199.	532.
42	125.	335.
48	84.	224.
54		157.
60		114.



VENT SIZE LIMITATIONS

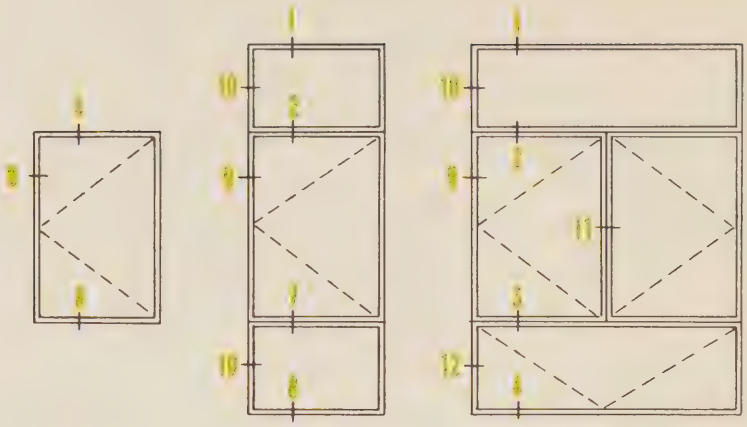
	SOLID		TUBULAR	
	WIDTH WINDOW DIM.	HEIGHT FRAME ℄ DIM.	WIDTH WINDOW DIM.	HEIGHT FRAME ℄ DIM.
MAX:	2'-4⅞"	4'-0"	3'-0⅞"	5'-4"
MIN:	1'-9"	2'-0"	1'-9"	3'-0"



DIMENSION REFERENCE POINTS

COMMERCIAL CASEMENT

SIZE DETAILS



ELEVATIONS ARE NUMBER KEYED TO THE CORRESPONDING DETAIL SECTIONS BELOW

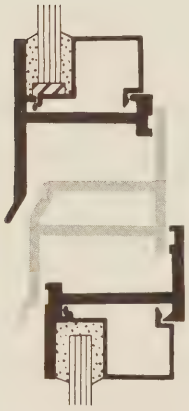
FIXED MEMBERS
OPERATING MEMBERS

P. I.—PROJECTED-IN
P. O.—PROJECTED-OUT

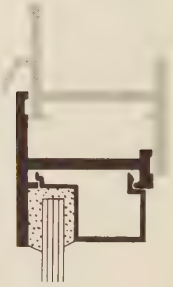
VERTICAL SECTIONS

1 HEAD FIXED GLASS

3 CASEMENT ABOVE P.I. VENT



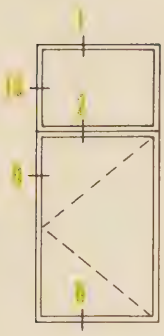
5 HEAD CASEMENT

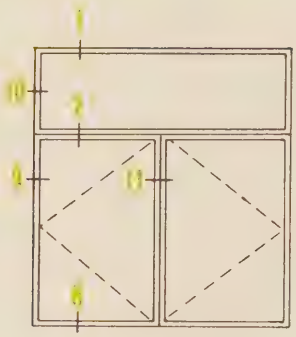


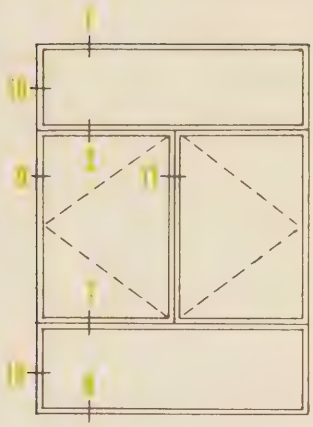
2 FIXED GLASS OVER CASEMENT

4 SILL P.I. VENT

6 SILL CASEMENT







FIXED MEMBERS
OPERATING MEMBERS

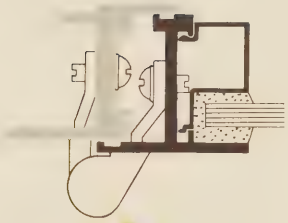
P. I.—PROJECTED-IN
P. O.—PROJECTED-OUT

VERTICAL SECTIONS

7
CASEMENT ABOVE FIXED GLASS

6
SILL FIXED GLASS

HORIZONTAL SECTIONS



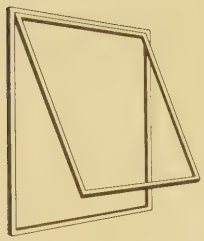
9
CASEMENT

11
CASEMENT

10
FIXED GLASS

12
P. I. VENT

COMMERCIAL TOP-HINGED



SHORT FORM SPECIFICATION TOP-HINGED WINDOW

MATERIALS: All ventilators, frames, mullions, perimeters, balance arms and extruded glazing beads shall be 6063-T5 aluminum alloy. The combined overall depth of the window sections at ventilators shall not be less than 1⅝". All fasteners shall be of non-magnetic stainless steel, aluminum or other compatible materials. Continuous weatherstrip shall be applied to the full perimeter of the ventilator and shall be of black neoprene. Friction shoes shall be self-lubricating nylon. All mechanically fastened joints shall be factory sealed with a resilient, non-hardening compound.

CONSTRUCTION: All four corners of ventilators shall be mitered, electronic fusion welded and trimmed. Welds shall not be discolored after finishing. Frame corners and joints of meeting rails and muntins shall be double tenon jointed, mechanically forged and made permanently leak-proof at the factory. Ventilator rails or meeting rails or muntins shall be _____ sections (see Chart on next page for selection of solid or tubular rails). The minimum depth of glazing rebate shall be ¾". Glazing beads shall be of the snap-in type and shall have no exposed fasteners. All rails above operating vent joints shall have integral drips and all bottom horizontal rails on operating vents shall have a pressure equalization slot to eliminate leakage and control draining. All other rails shall have a continuous weathering overlap of metal, not less than 5/16" in width.

FINISHES: Windows shall be free of scratches and other serious surface blemishes and chemically cleaned to remove fabricating oil. All aluminum sections shall be given a caustic etch and anodic oxide treatment to conform to N A A M M specification NA-CE1A. (For additional specifications and protective coatings, see General Specifications, Pages 8 and 9.)

FINISH HARDWARE: Concealed latch shall be stainless steel and shall be operated by Allen wrench. Windows shall be provided with flush type locks and shall be fastened with stainless steel screws.

VENTILATOR HARDWARE: Ventilators shall be supported on aluminum balance arms not less than 3/16" x 1". Hold-open arms shall be securely attached to the window and shall be pivoted on nylon bushings.

The sliding mechanisms shall be securely attached to the window frame and shall consist of sliding nylon shoes, with a friction adjustment and shall hold the ventilator firmly in any open position.

SCREENS: (Used with Projected Vents when they are combined with Top-Hinged Windows.) Insect screens shall be constructed with extruded frames, rigidly joined at their corners. Screen cloth shall be 18 x 16 mesh aluminum and shall be cleaned thoroughly to provide a uniform color. Screen frames shall be finished to match aluminum windows. Splines shall be extruded vinyl, removable to permit rescreening.

PERFORMANCE: Manufacturer shall furnish an affidavit or certified test report by a N A A M M approved testing agency, stating that the window meets or exceeds the following:

Resistance to air infiltration: Static air infiltration shall not exceed .25 CFM per lineal foot of crack perimeter when tested as prescribed in N A A M M Test B (Metal Curtain Walls).

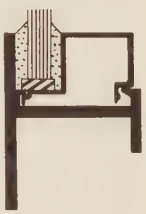
Resistance to water infiltration: There shall be no leakage when the window is tested by static pressure using methods prescribed in N A A M M Test C1 (Metal Curtain Walls) at 15 PSF.*

Performance under uniform loading: Maximum deflection of any member shall not exceed 1/175 of its span and when the load is removed, there shall be no evidence of any permanent deformation or damage to any member when tested under a load of 25 PSF for a period not less than 5 minutes. Windows shall be glazed, closed, and locked and shall be continuously supported on all sides.

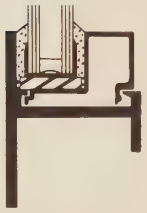
*Although test followed procedures recommended in The N A A M M Curtain Wall Manual, test loads were considerably higher and performances were certified to exceed N A A M M standards.

GLASS THICKNESS OPTIONS

FOR: ⅛" & 3/16" GLASS
BEAD: 360-081
ST. BLK.: 257-880



FOR: ¼" & 7/32" GLASS
BEAD: 360-080
ST. BLK.: 257-880

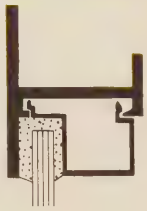


FOR: ½" GLASS
BEAD: 360-082
ST. BLK.: 257-882

FOR: ⅝" GLASS
BEAD: 360-083
ST. BLK.: 257-882

FOR: ⅛"-3/16"-¼"-7/32"
PUTTY GLAZING
ST. BLK.: 360-213

GLAZING OPTIONS



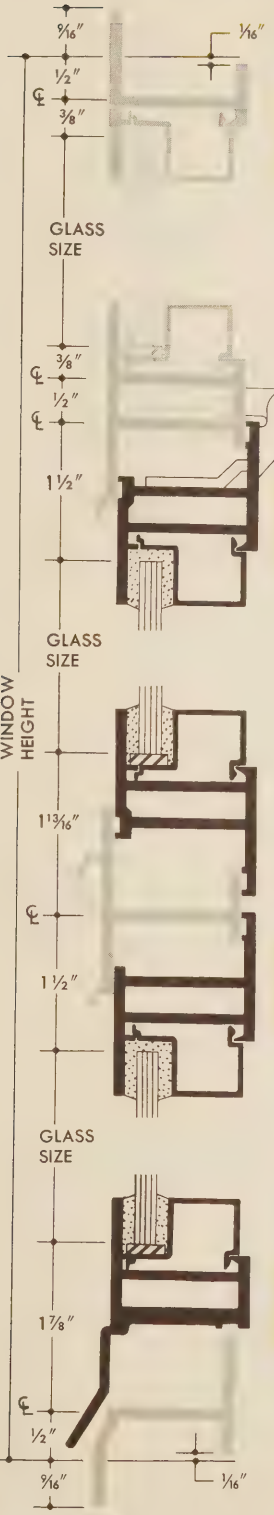
INSIDE BEAD

OUTSIDE PUTTY

OUTSIDE BEAD

DIMENSION REFERENCE POINTS

P. I.—PROJECTED-IN
I. S.—IN-SWINGING

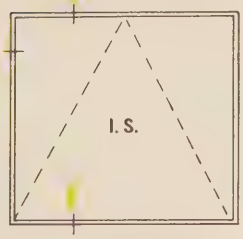


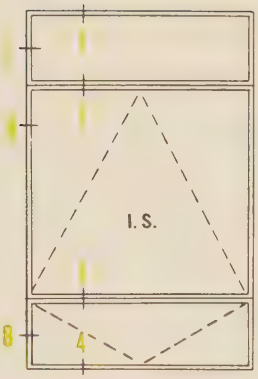
1 HEAD FIXED GLASS

2 FIXED GLASS OVER I. S. VENT

3 I. S. VENT OVER P. I. VENT

4 SILL P. I. VENT





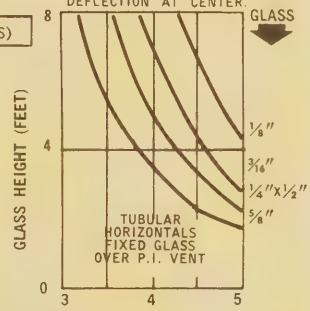
ELEVATIONS ARE NUMBER KEYED TO THE CORRESPONDING DETAIL SECTIONS BELOW

DESIGN RECOMMENDATIONS

WEIGHT LIMITATIONS
BASED ON 1/8" POINT LOADING FOR METAL PANEL WITH MAX. 1/16" DEFLECTION.

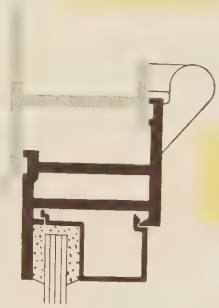
WIDTH IN INCHES	MAXIMUM LOAD (POUNDS) TUBULAR
24	1011.
30	517.
36	299.
42	188.
48	126.
54	88.
60	64.

GLASS SIZE LIMITATIONS
BASED ON 1/4" POINT LOADING WITH MAXIMUM 1/16" DEFLECTION AT CENTER.



VENT SIZE LIMITATIONS
TUBULAR

	WIDTH WINDOW DIM.	HEIGHT FRAME ℄ DIM.
MAX:	4'-4 7/8"	7'-0"
MIN:	3'-0"	3'-0"



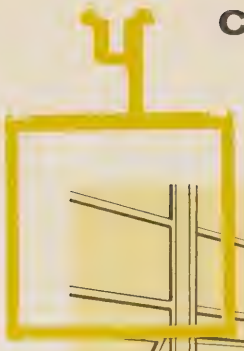
5 HEAD I. S. VENT

6 SILL I. S. VENT

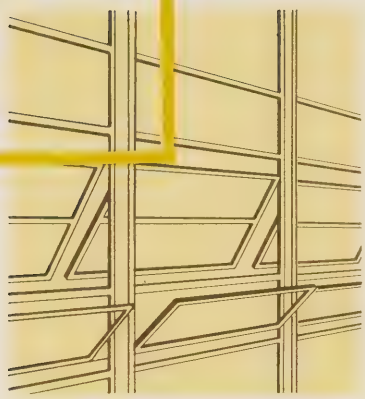
7 FIXED GLASS

8 P. I. VENT AND I. S. VENT

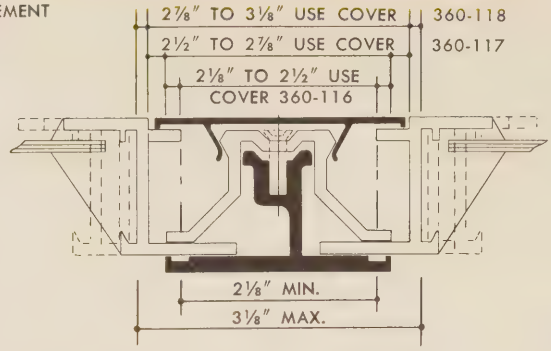
COMMERCIAL MULLIONS and ACCESSORIES



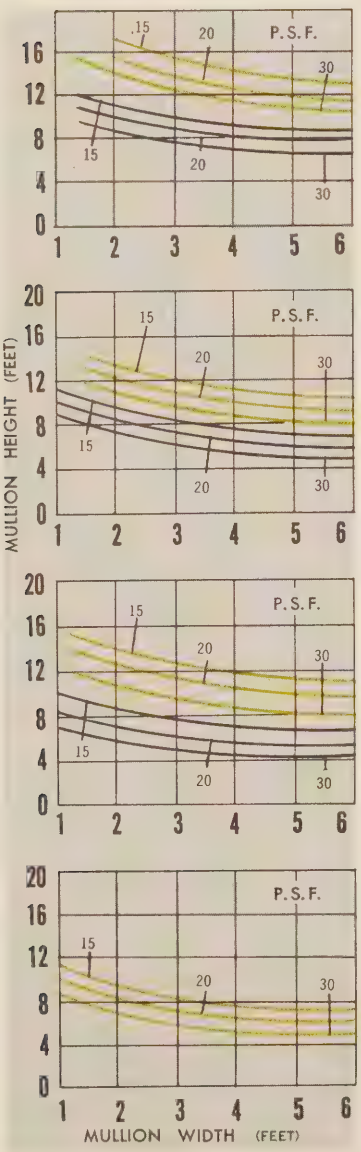
FOR PROJECTED, CASEMENT OR TOP-HINGED

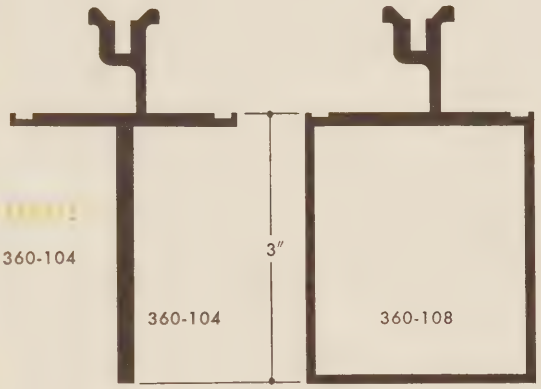


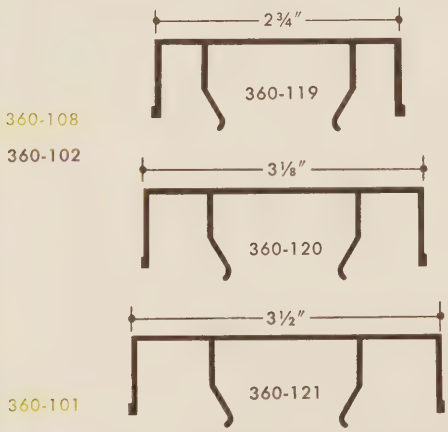
TYPICAL MULLION ASSEMBLY



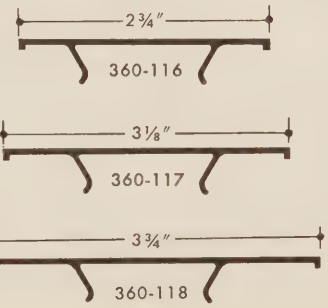
MULLION LIMITATIONS

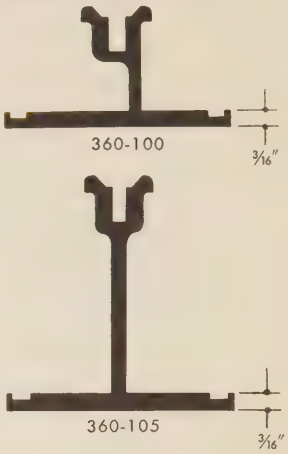


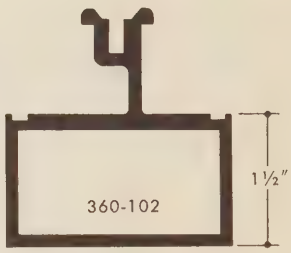


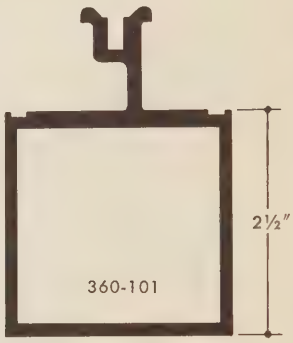


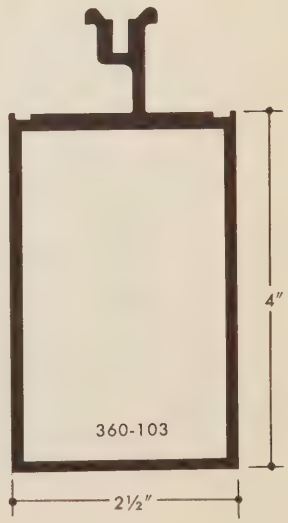
NOTE: MULLION COVERS 119 THROUGH 121 ARE USED WITH MULLION 360-105 ONLY







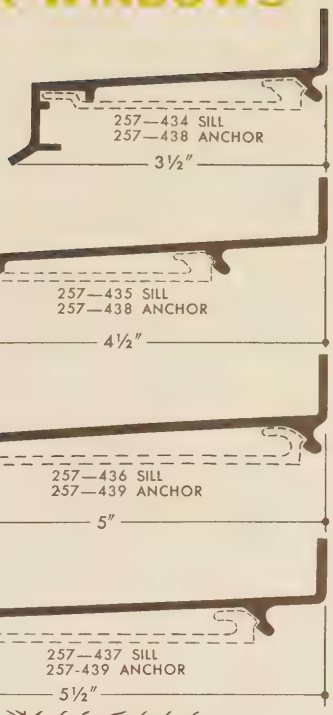




HEAD

JAMB

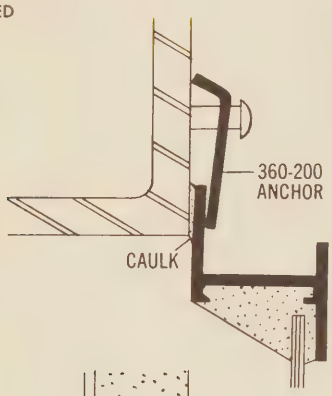
SILLS



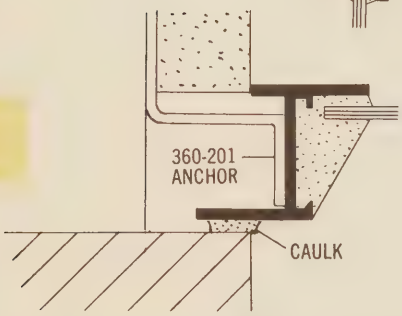
TYPICAL ANCHORING

FOR COMMERCIAL, PROJECTED, CASEMENT OR TOP-HINGED

HEAD



JAMB



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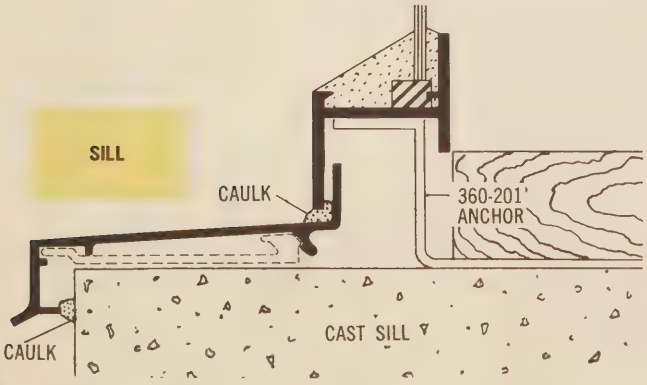
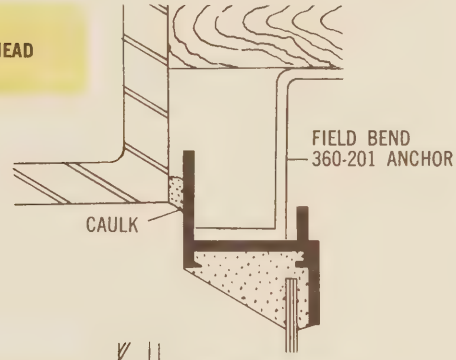


HEAD



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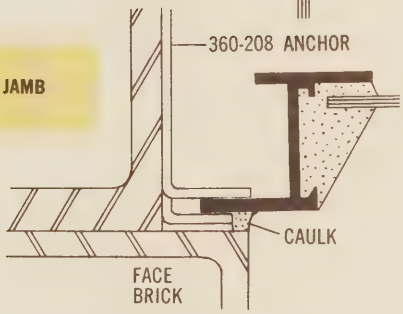
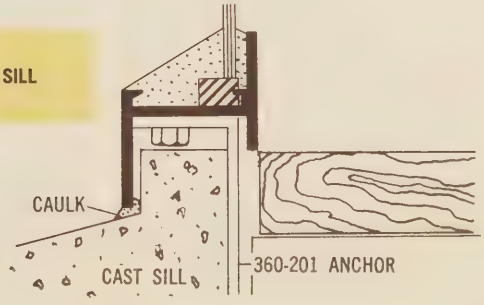
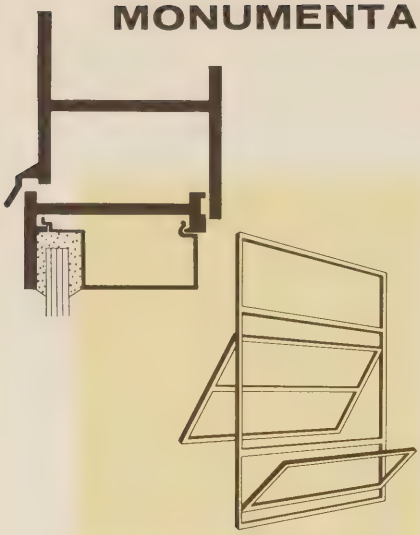


SILL



MONUMENTAL PROJECTED



SHORT FORM SPECIFICATION—PROJECTED WINDOW

MATERIALS: All ventilators, frames, mullions, perimeters, balance arms and extruded glazing beads shall be 6063-T5 aluminum alloy. The combined overall depth of the window sections at ventilators shall not be less than 2⅛". All fasteners shall be of non-magnetic stainless steel, aluminum or other compatible materials. Locking handles, strikes and keepers, pole rings and spring latches shall be of white bronze with a minimum 20% nickel content and shall be non-corrosive and non-staining to window members. Continuous weatherstip shall be applied to the full perimeter of the ventilator and shall be of black neoprene. Friction shoes shall be self-lubricating nylon. All mechanically fastened joints shall be factory sealed with a resilient, non-hardening compound.

CONSTRUCTION: All four corners of ventilators shall be mitered, electronic fusion welded and trimmed. Welds shall not be discolored after finishing. Frame corners and joints of meeting rails and muntins shall be double tenon jointed, mechanically forged and made permanently leak-proof at the factory. Ventilator rails or meeting rails or muntins shall be _____ sections (see Chart on next page for selection of solid or tubular rails). The minimum depth of glazing rebate shall be ¾". Glazing beads shall be of the snap-in type and shall have no exposed fasteners. All rails above operating vent joints shall have integral drips and all bottom horizontal rails on operating vents shall have a pressure equalization slot to eliminate leakage and control draining. All other rails shall have a continuous weathering overlap of metal, not less than 5/16" in width.

FINISHES: Windows shall be free of scratches and other serious surface blemishes and chemically cleaned to remove fabricating oil. All aluminum sections shall be given a caustic etch and anodic oxide treatment to conform to NAAMM specification NA-CE1A. (For additional specifications and protective coatings, see General Specifications, Pages 8 and 9.)

FINISH HARDWARE: Locking handles and keepers, pull rings and spring latches shall be non-corrosive and non-staining to window members. All handles shall be fastened by screws directly into white bronze or through stainless steel reinforcing inserts and be removable for replacement or adjustment without damaging ventilators or frame. Use _____ handles on (type) vents over _____ widths. (See Page 4, Section G in Kawneer Sealair Window Construction Details.)

VENTILATOR HARDWARE: Ventilators shall be supported on fully adjustable aluminum balance arms allowing 55° opening and shall be equipped with a positive stop. Arms shall be not less than 3/16" x 1" and shall be pivoted on nylon bushings.

The sliding mechanisms shall be securely attached to the window frame and shall consist of sliding nylon shoes, with a friction adjustment and shall hold the ventilator firmly in any open position.

SCREENS: Insect screens shall be constructed with extruded frames, rigidly joined at their corners. Screen cloth shall be 18 x 16 mesh aluminum and shall be cleaned thoroughly to provide a uniform color. Screen frames shall be finished to match aluminum windows. Splines shall be extruded vinyl, removable to permit rescreening.

ACCESSORIES: Pole operators shall have handles of tubular aluminum with a rubber tip at the lower end and shall be of proper length to permit easy operation of the window from the floor.

PERFORMANCE: Manufacturer shall furnish an affidavit or certified test report by a testing agency using testing procedures listed by NAAMM, stating that the window meets or exceeds the following:

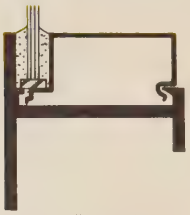
Resistance to air infiltration: Static air infiltration shall not exceed .25 CFM per lineal foot of crack perimeter when tested as prescribed in NAAMM Test B (Metal Curtain Walls).

Resistance to water infiltration: There shall be no leakage when the window is tested by static pressure using methods prescribed in NAAMM Test C1 (Metal Curtain Walls) at 25 PSF.*

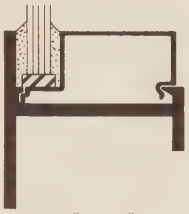
Performance under uniform loading: Maximum deflection of any member shall not exceed 1/175 of its span and when the load is removed, there shall be no evidence of any permanent deformation or damage to any member when tested under a load of 35 PSF (architect to specify if higher loads required) for a period not less than 5 minutes. Windows shall be glazed, closed, and locked and shall be continuously supported on all sides.

*Although tests followed procedures recommend in The NAAMM Curtain Wall Manual, test loads were considerably higher and performances were certified to exceed NAAMM standards.

GLASS THICKNESS OPTIONS

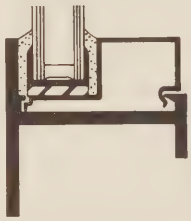


FOR: ⅛" & 3/16" GLASS
BEAD: 370-081
ST. BLK.: 257-880



FOR: ¼" & 7/32" GLASS
BEAD: 370-080
ST. BLK.: 257-880

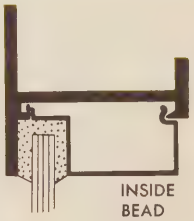
FOR: ½" GLASS
BEAD: 370-082
ST. BLK.: 257-882



FOR: ⅜" GLASS
BEAD: 370-083
ST. BLK.: 257-882

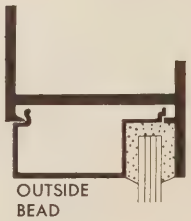
FOR: ⅛"-3/16"-¼"-7/32"
PUTTY GLAZING
ST. BLK.: 360-213

GLAZING OPTIONS

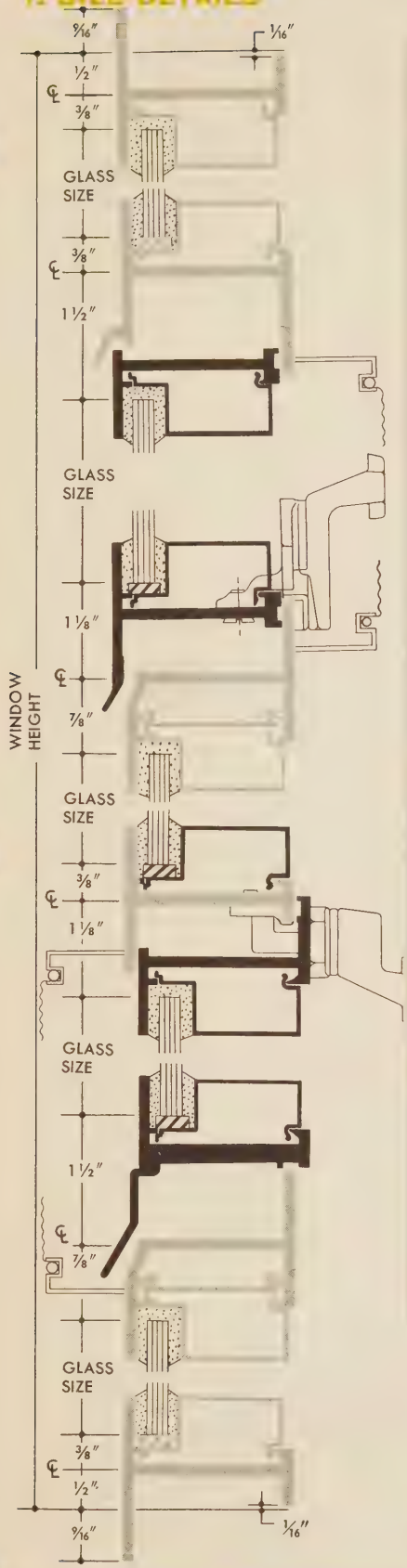


INSIDE BEAD

OUTSIDE PUTTY

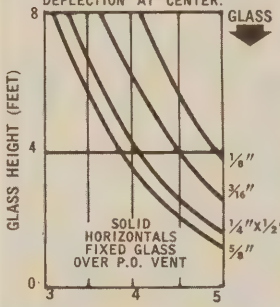


OUTSIDE BEAD



DESIGN OPTIONS and RECOMMENDATIONS

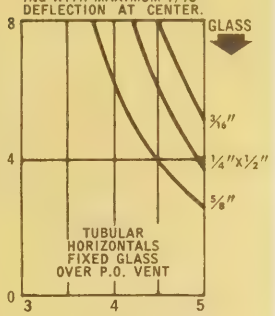
GLASS SIZE LIMITATIONS
BASED ON ¼" POINT LOADING WITH MAXIMUM 1/16" DEFLECTION AT CENTER.

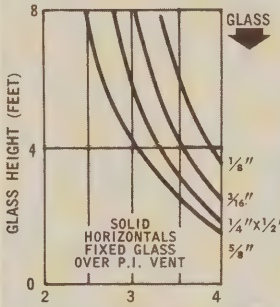


WEIGHT LIMITATIONS
BASED ON 1/8" POINT LOADING FOR METAL PANEL WITH MAX. 1/16" DEFLECTION.

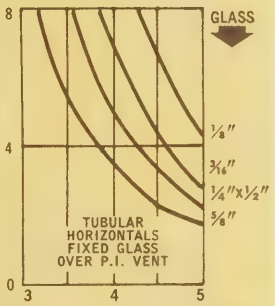
WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	857	1918
30	438	482
36	253	568
42	159	357
48	107	239
54	75	168
60	54	122

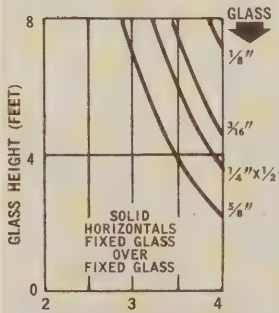
GLASS SIZE LIMITATIONS
BASED ON ¼" POINT LOADING WITH MAXIMUM 1/16" DEFLECTION AT CENTER.



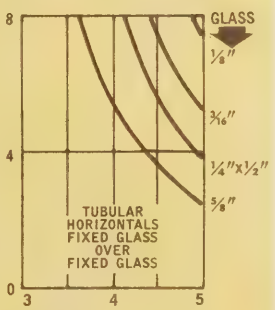


WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	378	1011
30	193	517
36	112	299
42	70	188
48	47	126
54		88
60		64





WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	673	1796
30	344	919
36	199	532
42	125	335
48	84	224
54		157
60		114

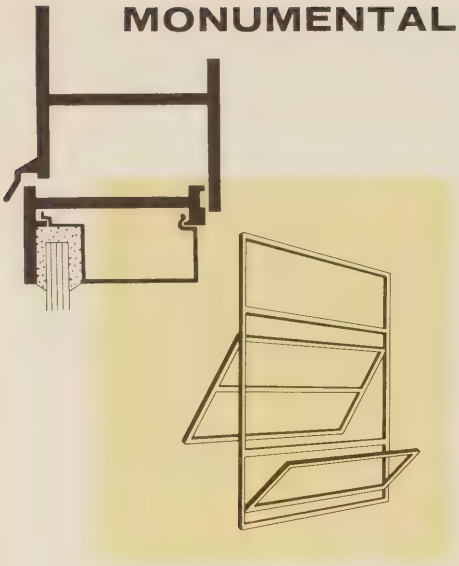


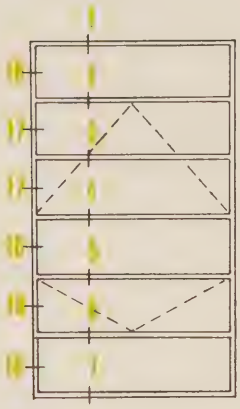
VENT SIZE LIMITATIONS

	SOLID		TUBULAR	
	WIDTH WINDOW DIM.	HEIGHT FRAME ℄ DIM.	WIDTH WINDOW DIM.	HEIGHT FRAME ℄ DIM.
MAX:	4'-4⅞"	3'-0"	5'-0⅞"	3'-6"
MIN:	2'-0"	15⅜"	3'-0"	15⅜"

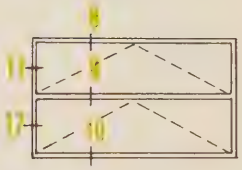
DIMENSION REFERENCE POINTS

MONUMENTAL PROJECTED





P. I.—PROJECTED-IN
P. O.—PROJECTED-OUT

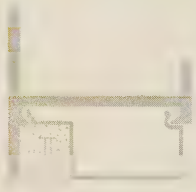


ELEVATIONS ARE NUMBER KEYED TO THE CORRESPONDING DETAIL SECTIONS BELOW

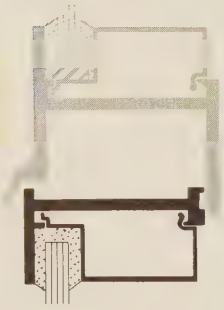
FIXED MEMBERS
OPERATING MEMBERS

VERTICAL SECTIONS

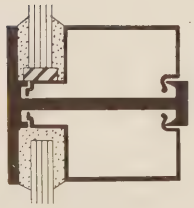
1 FIXED HEAD GLASS



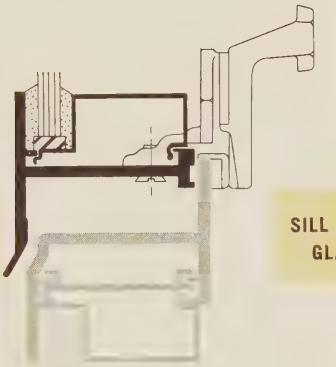
2 FIXED GLASS ABOVE P. O. VENT



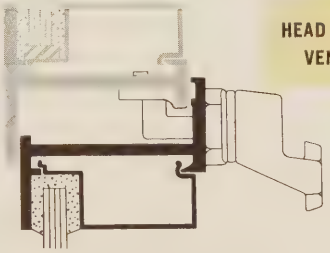
3 HORIZONTAL MUNTIN



4 P. O. VENT ABOVE FIXED GLASS



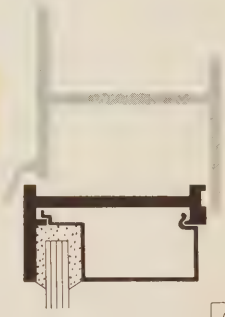
5 FIXED GLASS OVER P. I. VENT



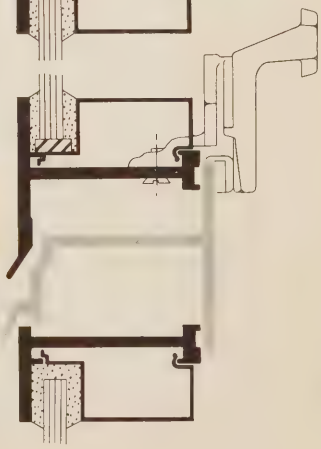
6 P. I. VENT OVER FIXED GLASS

7 SILL FIXED GLASS

8 HEAD P. O. VENT

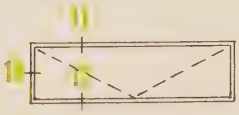


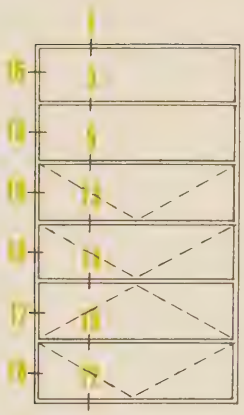
9 P. O. VENT OVER P. O. VENT



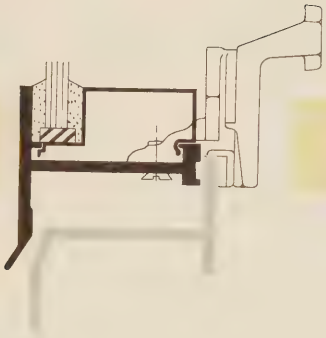
FIXED MEMBERS
OPERATING MEMBERS
P. I.—PROJECTED-IN
P. O.—PROJECTED-OUT

ELEVATIONS ARE NUMBER KEYED TO THE CORRESPONDING DETAIL SECTIONS BELOW

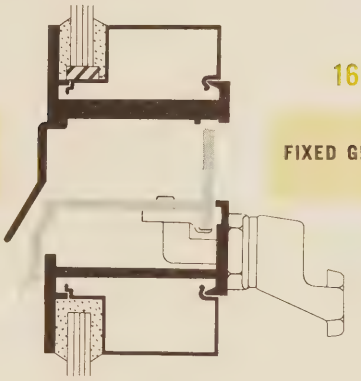




10
SILL P. O. VENT

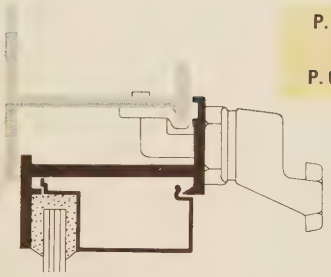


13
P. I. VENT ABOVE P. I. VENT

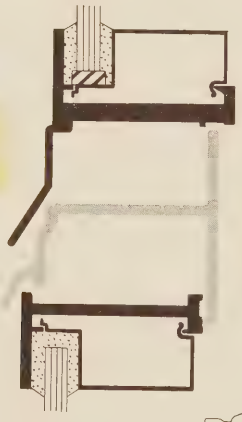


16
FIXED GLASS

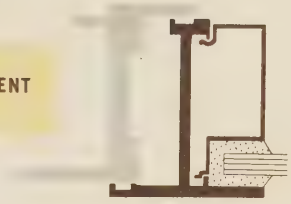
11
HEAD P. I. VENT



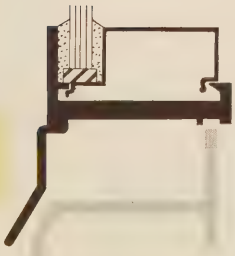
14
P. I. VENT OVER P. O. VENT



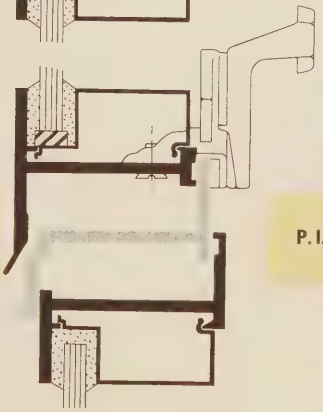
17
P. O. VENT



12
SILL P. I. VENT

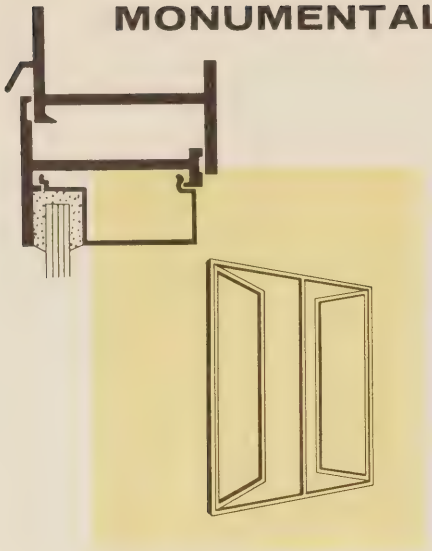


15
P. O. VENT ABOVE P. I. VENT



18
P. I. VENT

MONUMENTAL CASEMENT



SHORT FORM SPECIFICATION CASEMENT WINDOW

MATERIALS: All ventilators, frames, mullions, perimeters, balance arms and extruded glazing beads shall be 6063-T5 aluminum alloy. The combined overall depth of the window sections at ventilators shall not be less than 2⅛" All fasteners shall be of non-magnetic stainless steel, aluminum or other compatible materials. Locking handles, keepers and gear operators shall be white bronze with a minimum 20% nickel content and shall be non-corrosive and non-staining to window members. Continuous weatherstrip shall be applied to the full perimeter of the ventilator and shall be of black neoprene. Friction shoes shall be self-lubricating nylon. All mechanically fastened joints shall be factory sealed with a resilient, non-hardening compound. Hinges shall be aluminum with stainless steel pins and thrust bearing and oilite bushings.

CONSTRUCTION: All four corners of ventilators shall be mitered, electronic fusion welded and trimmed. Welds shall not be discolored after finishing. Frame corners and joints of meeting rails and muntins shall be double tenon jointed, mechanically forged and made permanently leak-proof at the factory. Ventilator rails or meeting rails or muntins shall be _____ sections (see Chart on next page for selection of solid or tubular rails). The minimum depth of glazing rebate shall be ¾". Glazing beads shall be of the snap-in type and shall have no exposed fasteners. All rails above operating vent joints shall have integral drips and all bottom horizontal rails on operating vents shall have a pressure equalization slot to eliminate leakage and control draining. All other rails shall have a continuous weathering overlap of metal, not less than 5/16" in width.

FINISHES: Windows shall be free of scratches and other serious surface blemishes and chemically cleaned to remove fabricating oil. All aluminum sections shall be given a caustic etch and anodic oxide treatment to conform to N A A M M specification NA-CE1A. (For additional specifications and protective coatings, see General Specifications, Pages 8 and 9.)

FINISH HARDWARE: Locking handles, gear operators and hinges shall be non-corrosive and non-staining to windows. Operators shall be fastened by stainless steel screws through stainless steel reinforcing inserts and be removable for replacement or adjustment without damaging ventilators or frame.

SCREENS: (Used with Projected Vents when they are combined with Casement Windows.) Insect screens shall be constructed with extruded frames, rigidly joined at their corners. Screen cloth shall be 18 x 16 mesh aluminum and shall be cleaned thoroughly to provide a uniform color. Screen frames shall be finished to match aluminum windows. Splines shall be extruded vinyl, removable to permit rescreening.

PERFORMANCE: Manufacturer shall furnish an affidavit or certified test report by a N A A M M approved testing agency, stating that the window meets or exceeds the following:

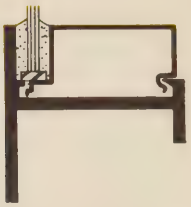
Resistance to air infiltration: Static air infiltration shall not exceed .25 CFM per lineal foot of crack perimeter when tested as prescribed in N A A M M Test B (Metal Curtain Walls).

Resistance to water infiltration: There shall be no leakage when the window is tested by static pressure using methods prescribed in N A A M M Test C1 (Metal Curtain Walls) at 15 PSF.*

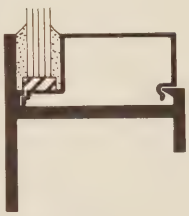
Performance under uniform loading: Maximum deflection of any member shall not exceed 1/175 of its span and when the load is removed, there shall be no evidence of any permanent deformation or damage to any member when tested under a load of 25 PSF (architect to specify if higher loads required) for a period not less than 5 minutes. Windows shall be glazed, closed, and locked and shall be continuously supported on all sides.

*Although tests followed procedures recommend in The N A A M M Curtain Wall Manual, test loads were considerably higher and performances were certified to exceed NAAMM standards.

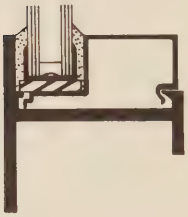
GLASS THICKNESS OPTIONS



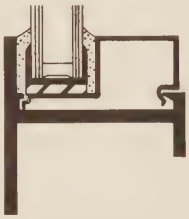
FOR: ⅛" & 3/16" GLASS
BEAD: 370-081
ST. BLK.: 257-880



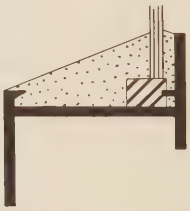
FOR: ¼" & 7/32" GLASS
BEAD: 370-080
ST. BLK.: 257-880



FOR: ½" GLASS
BEAD: 370-082
ST. BLK.: 257-882

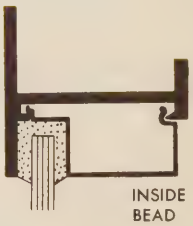


FOR: 5/8" GLASS
BEAD: 370-083
ST. BLK.: 257-882

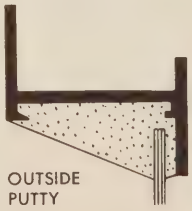


FOR: ⅛"-3/16"-¼"-7/32"
PUTTY GLAZING
ST. BLK.: 360-213

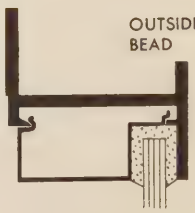
GLAZING OPTIONS



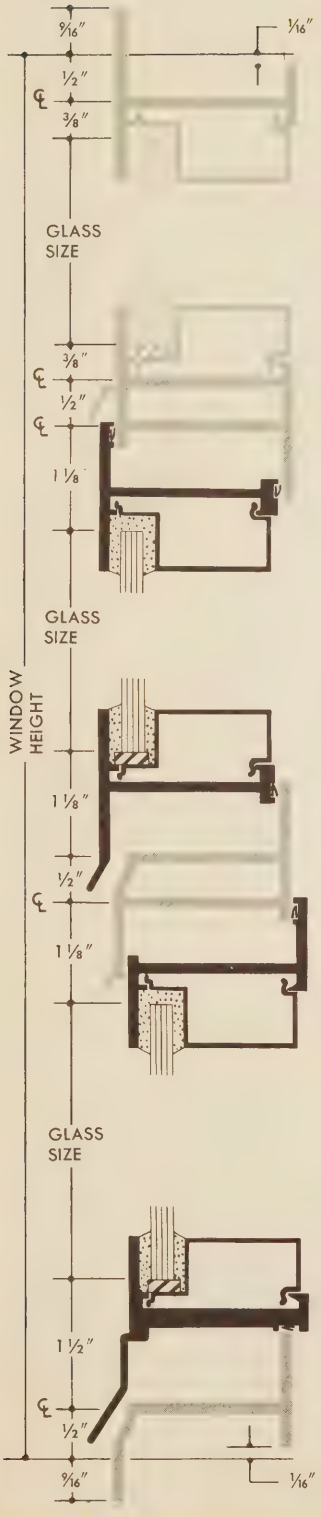
INSIDE BEAD



OUTSIDE PUTTY



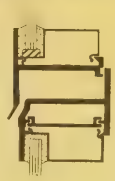
OUTSIDE BEAD



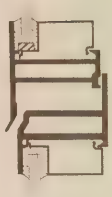
DIMENSION REFERENCE POINTS

DESIGN OPTIONS and RECOMMENDATIONS

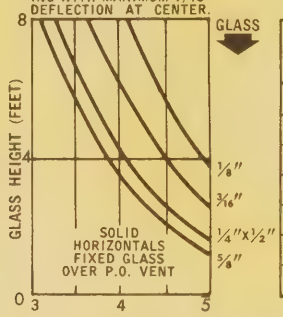
SOLID



TUBULAR



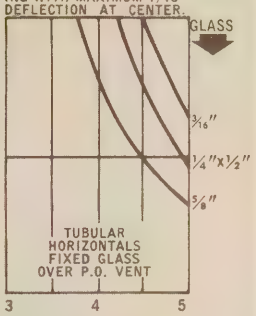
GLASS SIZE LIMITATIONS
BASED ON ¼" POINT LOADING WITH MAXIMUM 1/16" DEFLECTION AT CENTER.

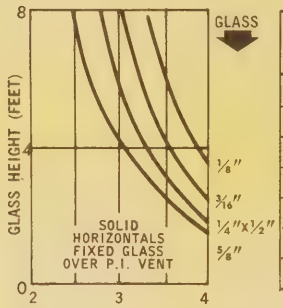


WEIGHT LIMITATIONS
BASED ON ⅛" POINT LOADING FOR METAL PANEL WITH MAX. 1/16" DEFLECTION.

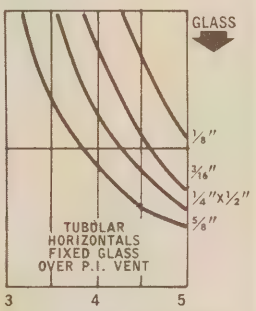
WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	857.	1918.
30	438.	482.
36	253.	568.
42	159.	357.
48	107.	239.
54	75.	168.
60	54.	122.

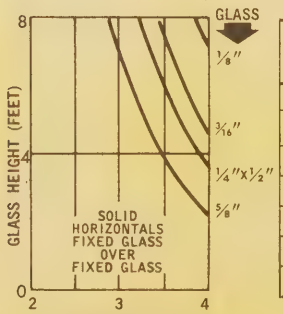
GLASS SIZE LIMITATIONS
BASED ON ¼" POINT LOADING WITH MAXIMUM 1/16" DEFLECTION AT CENTER.



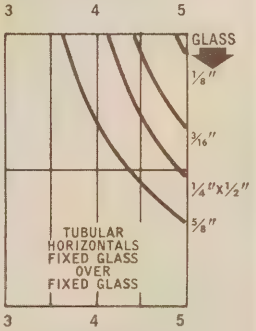


WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	378.	1011.
30	193.	517.
36	112.	299.
42	70.	188.
48	47.	126.
54		88.
60		64.



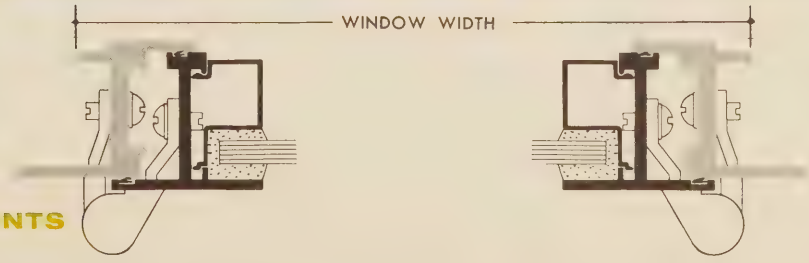


WIDTH IN INCHES	MAXIMUM LOAD (POUNDS)	
	SOLID	TUBULAR
24	673.	1796.
30	344.	919.
36	199.	532.
42	125.	335.
48	84.	224.
54		157.
60		114.



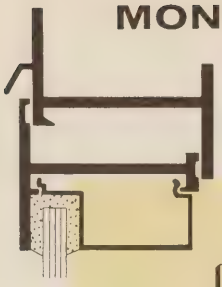
VENT SIZE LIMITATIONS

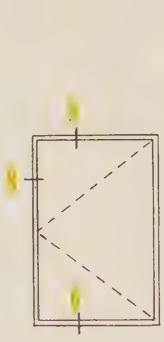
	SOLID		TUBULAR	
	WIDTH WINDOW DIM.	HEIGHT FRAME ℄ DIM.	WIDTH WINDOW DIM.	HEIGHT FRAME ℄ DIM.
MAX:	2'-4⅞"	4'-0"	3'-0⅞"	5'-4"
MIN:	1'-4"	2'-0"	1'-9"	3'-0"

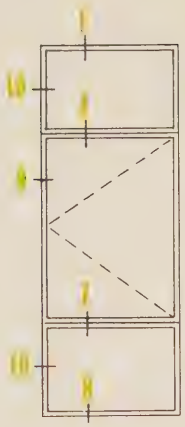


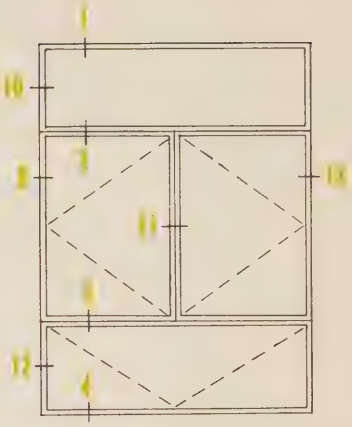
MONUMENTAL CASEMENT

¼ SIZE DETAILS









FIXED MEMBERS
OPERATING MEMBERS

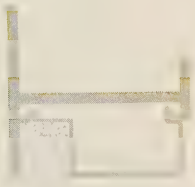
P. I.—PROJECTED-IN
P. O.—PROJECTED-OUT

ELEVATIONS ARE NUMBER KEYED TO THE CORRESPONDING DETAIL SECTIONS BELOW

VERTICAL SECTIONS

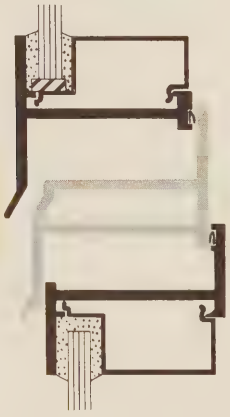
1

HEAD
FIXED GLASS



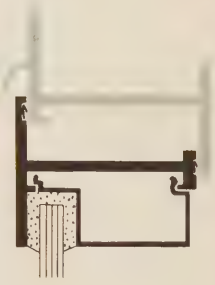
3

I. S. VENT
OVER
P. I. VENT



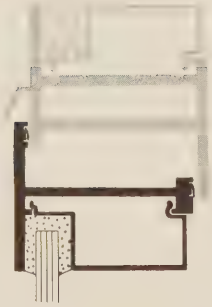
5

HEAD



2

FIXED GLASS
ABOVE
P. O. VENT

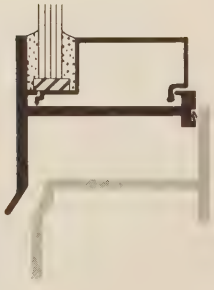


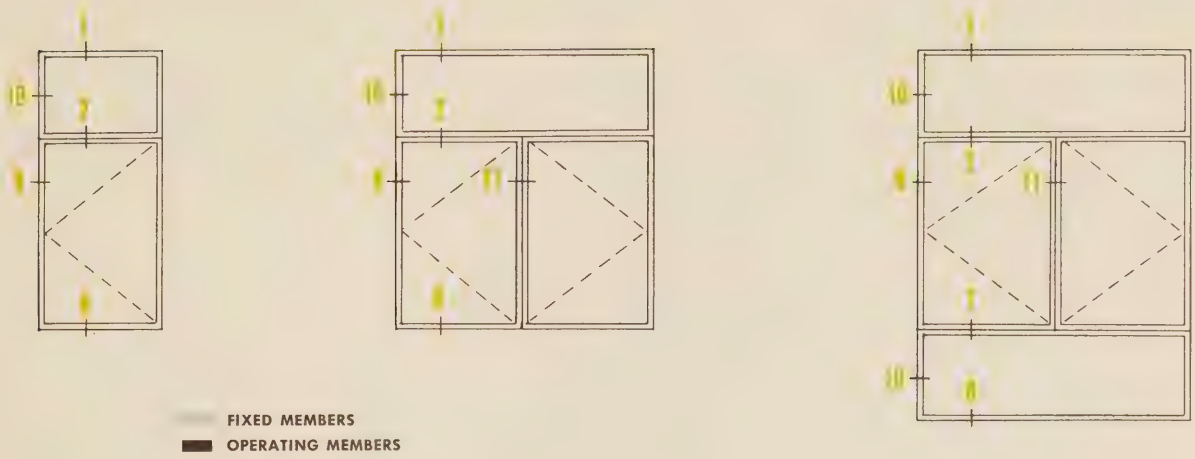
4

SILL P. I.
VENT

6

SILL



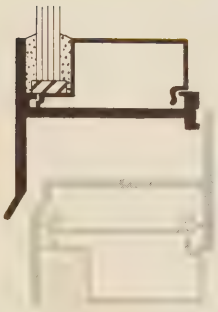


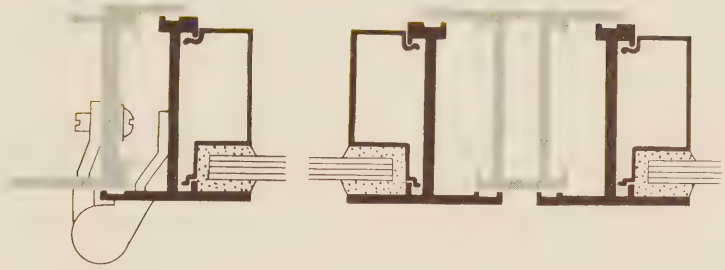
FIXED MEMBERS
OPERATING MEMBERS

VERTICAL SECTIONS

HORIZONTAL SECTIONS

7
CASEMENT ABOVE FIXED GLASS





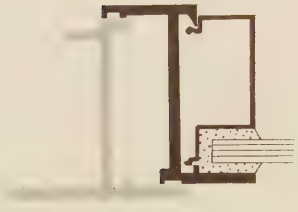
9
CASEMENT

11
CASEMENT

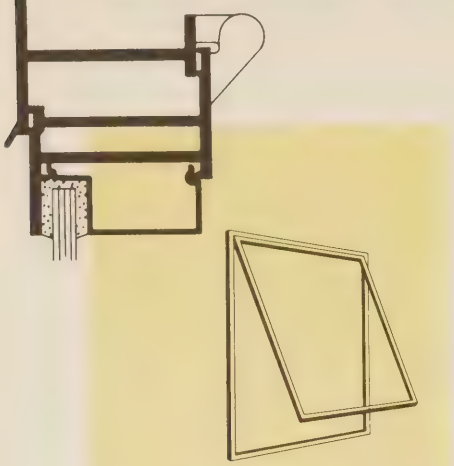
10
FIXED GLASS

12
P.I. VENT

8
SILL FIXED GLASS



MONUMENTAL TOP-HINGED



SHORT FORM SPECIFICATION TOP-HINGED WINDOW

MATERIALS: All ventilators, frames, mullions, perimeters, balance arms and extruded glazing beads shall be 6063-T5 aluminum alloy. The combined overall depth of the window sections at ventilators shall not be less than 2⅛". All fasteners shall be of non-magnetic stainless steel, aluminum or other compatible materials. Continuous weatherstrip shall be applied to the full perimeter of the ventilator and shall be of black neoprene. Friction shoes shall be self-lubricating nylon. All mechanically fastened joints shall be factory sealed with a resilient, non-hardening compound.

CONSTRUCTION: All four corners of ventilators shall be mitered, electronic fusion welded and trimmed. Welds shall not be discolored after finishing. Frame corners and joints of meeting rails and muntins shall be double tenon jointed, mechanically forged and made permanently leak-proof at the factory. Ventilator rails or meeting rails or muntins shall be _____ sections (see Chart on next page for selection of solid or tubular rails). The minimum depth of glazing rebate shall be ¾". Glazing beads shall be of the snap-in type and shall have no exposed fasteners. All rails above operating vent joints shall have integral drips and all bottom horizontal rails on operating vents shall have a pressure equalization slot to eliminate leakage and control draining. All other rails shall have a continuous weathering overlap of metal, not less than 5/16" in width.

FINISHES: Windows shall be free of scratches and other serious surface blemishes and chemically cleaned to remove fabricating oil. All aluminum sections shall be given a caustic etch and anodic oxide treatment to conform to N A A M M specification NA-CE1A. (For additional specifications and protective coatings, see General Specifications, Pages 8 and 9.)

FINISH HARDWARE: Concealed latch shall be stainless steel and shall be operated by Allen wrench. Windows shall be provided with flush type locks and shall be fastened with stainless steel screws.

VENTILATOR HARDWARE: Ventilators shall be supported on aluminum balance arms not less than 3/16" x 1". Hold-open arms shall be securely attached to the window and shall be pivoted on nylon bushings.

The sliding mechanisms shall be securely attached to the window frame and shall consist of sliding nylon shoes, with a friction adjustment and shall hold the ventilator firmly in any open position.

SCREENS: (Used with Projected Vents when they are combined with Top-Hinged Windows.) Insect screens shall be constructed with extruded frames, rigidly joined at their corners. Screen cloth shall be 18 x 16 mesh aluminum and shall be cleaned thoroughly to provide a uniform color. Screen frames shall be finished to match aluminum windows. Splines shall be extruded vinyl, removable to permit rescreening.

PERFORMANCE: Manufacturer shall furnish an affidavit or certified test report by a N A A M M approved testing agency, stating that the window meets or exceeds the following:

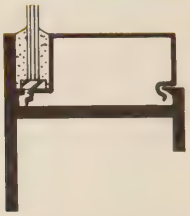
Resistance to air infiltration: Static air infiltration shall not exceed .25 CFM per lineal foot of crack perimeter when tested as prescribed in N A A M M Test B (Metal Curtain Walls).

Resistance to water infiltration: There shall be no leakage when the window is tested by static pressure using methods prescribed in N A A M M Test C1 (Metal Curtain Walls) at 15 PSF.*

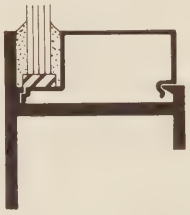
Performance under uniform loading: Maximum deflection of any member shall not exceed 1/175 of its span and when the load is removed, there shall be no evidence of any permanent deformation or damage to any member when tested under a load of 25 PSF for a period not less than 5 minutes. Windows shall be glazed, closed, and locked and shall be continuously supported on all sides.

*Although test followed procedures recommended in The N A A M M Curtain Wall Manual, test loads were considerably higher and performances were certified to exceed N A A M M standards.

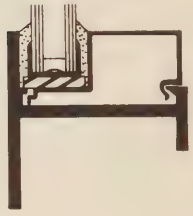
OPTIONAL GLASS THICKNESS



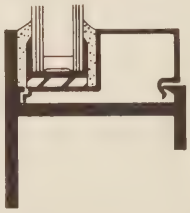
FOR: ⅛" & 3/16" GLASS
BEAD: 370-081
ST. BLK.: 257-880



FOR: ¼" & 7/32" GLASS
BEAD: 370-080
ST. BLK.: 257-880



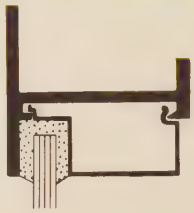
FOR: ½" GLASS
BEAD: 370-082
ST. BLK.: 257-882



FOR: ⅝" GLASS
BEAD: 370-083
ST. BLK.: 257-882

FOR: ⅛"-3/16"-¼"-7/32"
PUTTY GLAZING
ST. BLK.: 360-213

GLAZING OPTIONS

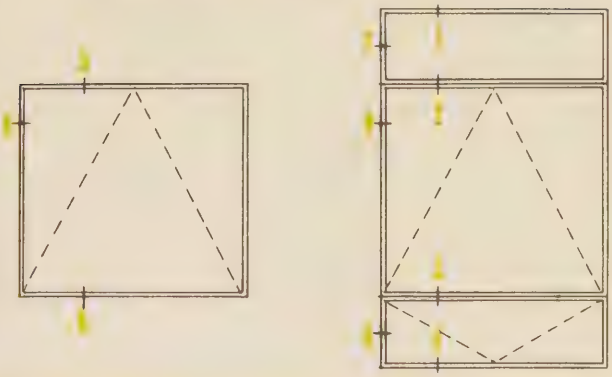


INSIDE BEAD

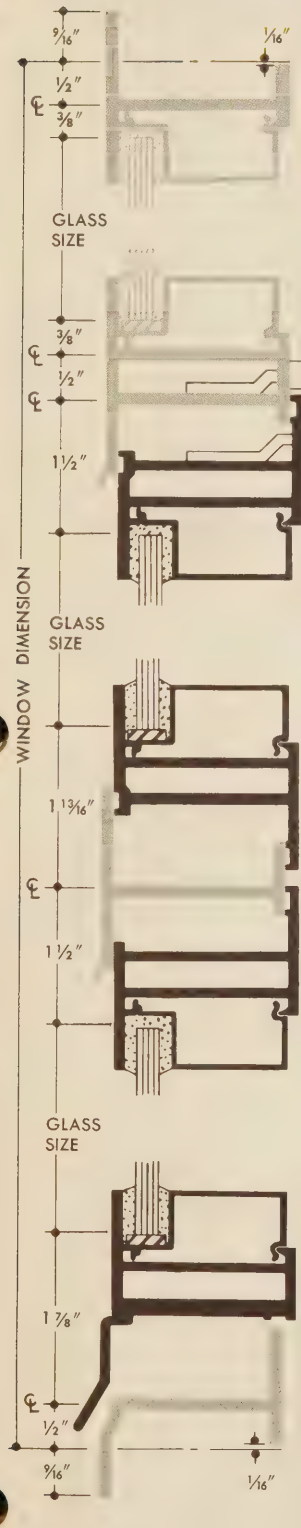
OUTSIDE PUTTY

OUTSIDE BEAD

ELEVATIONS ARE NUMBER KEYED TO THE CORRESPONDING DETAIL SECTIONS BELOW



DIMENSION REFERENCE POINTS



1 FIXED GLASS

2 FIXED GLASS OVER I. S. VENT

3 I. S. VENT OVER P. I. VENT

4 SILL P. I. VENT

5 HEAD I. S. VENT

6 P. I. VENT AND I. S. VENT

7 FIXED GLASS

8 SILL I. S. VENT

P. I.—PROJECTED-IN
P. O.—PROJECTED-OUT
I. S.—IN-SWINGING

TUBULAR EXTRUSIONS ONLY

HARDWARE KEY OPERATED NO HANDLES

DESIGN RECOMMENDATIONS

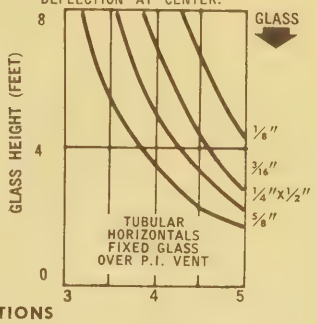
WEIGHT LIMITATIONS

BASED ON 1/8" POINT LOADING FOR METAL PANEL WITH MAX. 1/16" DEFLECTION.

WIDTH IN INCHES	MAXIMUM LOAD (POUNDS) TUBULAR
24	1011.
30	517.
36	299.
42	188.
48	126.
54	88.
60	64.

GLASS SIZE LIMITATIONS

BASED ON 1/4" POINT LOADING WITH MAXIMUM 1/16" DEFLECTION AT CENTER.



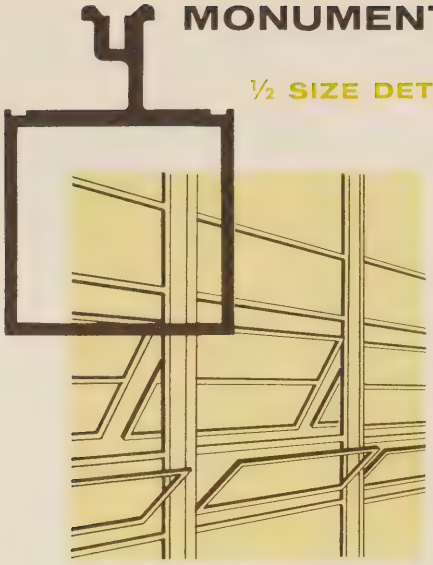
VENT SIZE LIMITATIONS

TUBULAR

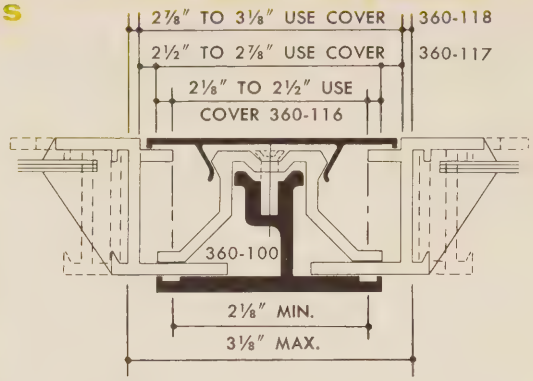
	WIDTH WINDOW DIM.	HEIGHT FRAME ℄ DIM.
MAX:	4'-8 7/8"	7'-0"
MIN:	3'-0"	3'-0"

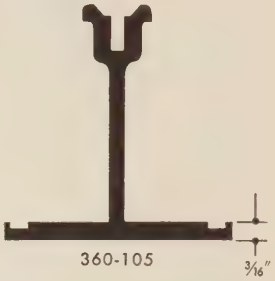
MONUMENTAL MULLIONS and ACCESSORIES

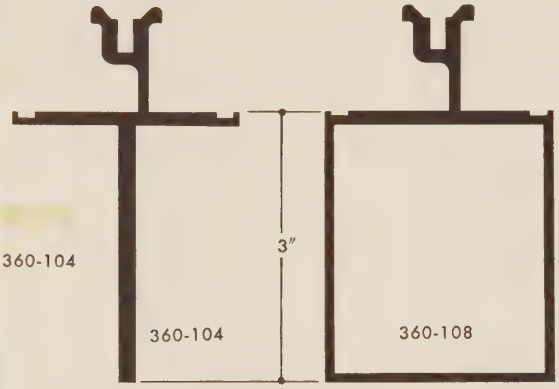
½ SIZE DETAILS

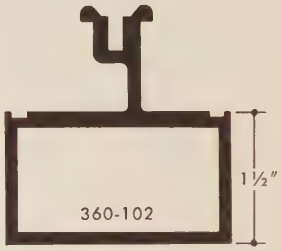


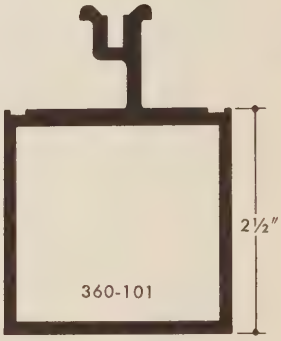
TYPICAL MULLION ASSEMBLY



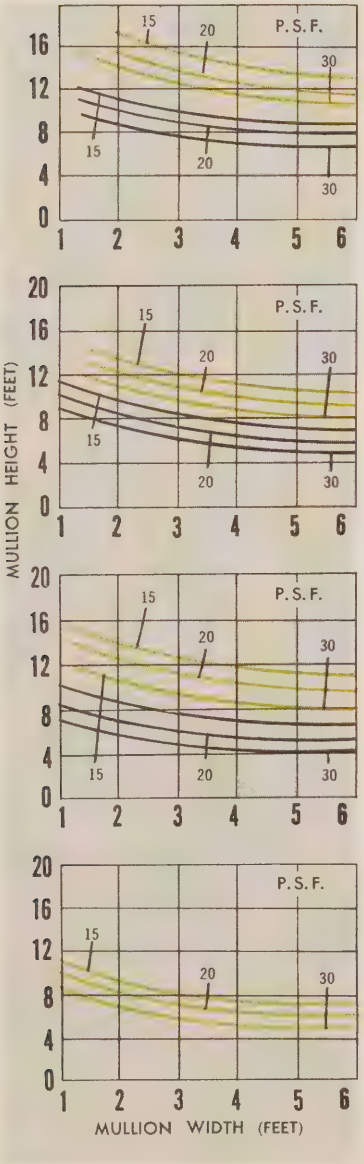




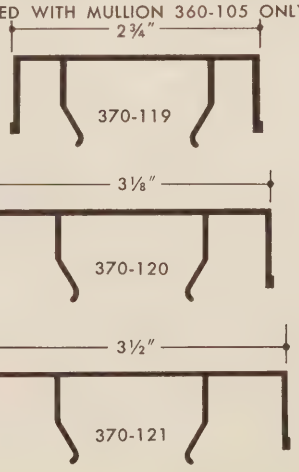




MULLION LIMITATIONS



NOTE: MULLION COVERS 119 THROUGH 121 ARE USED WITH MULLION 360-105 ONLY



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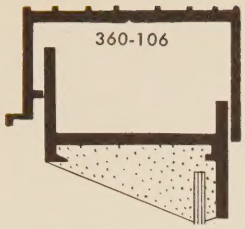
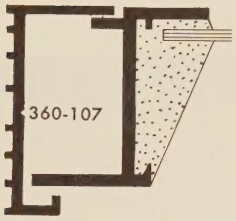


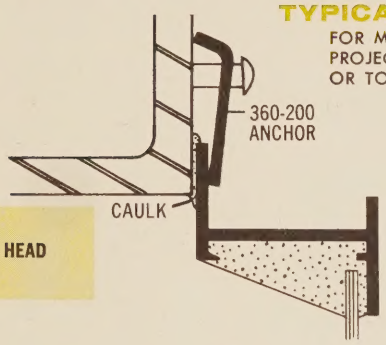
JAMB



TYPICAL ANCHORING

FOR MONUMENTAL, PROJECTED, CASEMENT OR TOP HINGED

HEAD



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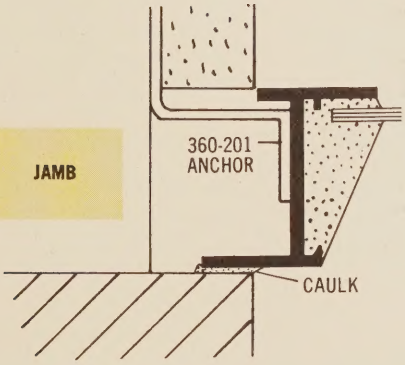
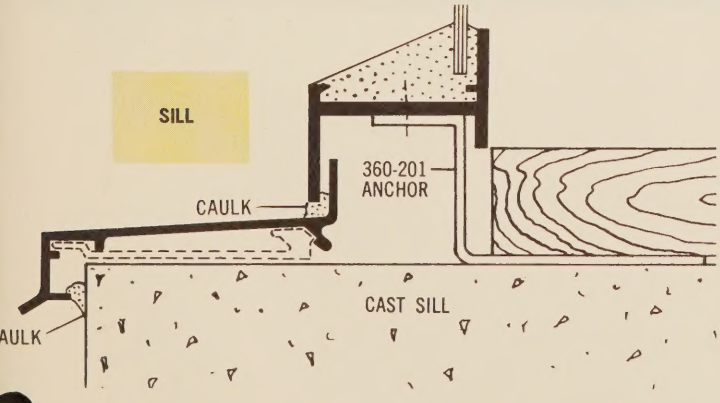


SILL



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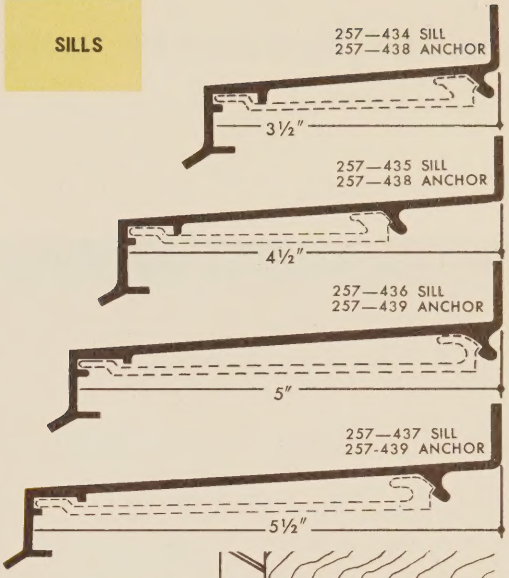
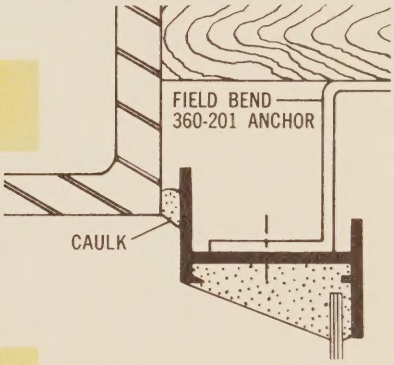


HEAD



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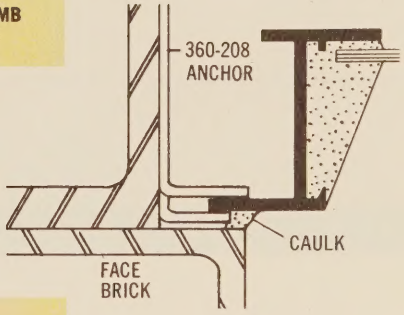

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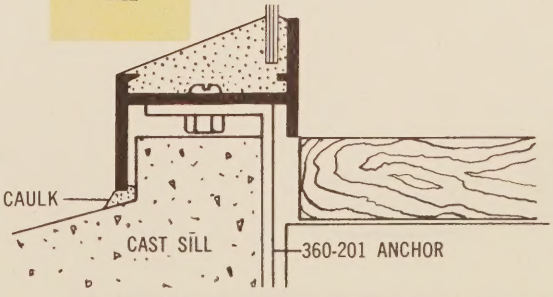

Kawneer / SEALAIR WINDOWS

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